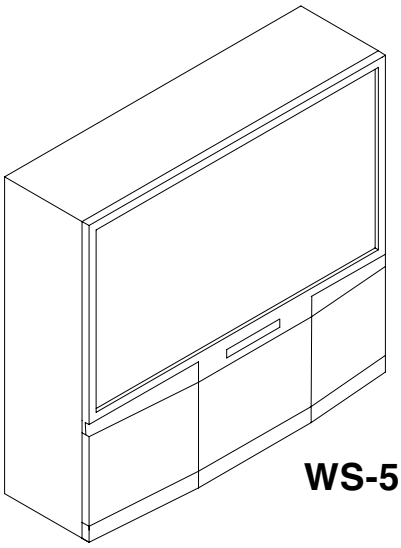
2001

MITSUBISHI ELECTRIC

Service Manual

PROJECTION TELEVISION
V18 / V18+ CHASSIS



WS-55809

V18 MODELS	V18+ MODELS
WT-46809	WS-55819
WS-55809	WS-65819
WS-65809	

CAUTION:
Before servicing this chassis, it is important that the service person read the "SAFETY PRECAUTIONS" and "PRODUCT SAFETY NOTICE" contained in this manual.

SPECIFICATIONS

- **Power Input** : AC 120V, 60Hz
- **Power Consumption** : 280W
- **Frequency Range** : VHF 54 ~ 470MHz
  UHF 470 ~ 806MHz
- **Antenna Input** : VHF/UHF 75Ω unbalanced
  Single axis input
- **CRT Size** : [7 inches]
- **High Voltage** : 32.0kV (at 0A)
- **Speaker** : [WT-46809 / WS-55809 / WS-65809
  5" round type, full range 2 pcs. (8Ω 10W)
  : [WS-55819 / WS-65819 / WS-73907]
  6" round type, full range 2 pcs. (8Ω 10W)
- **Weight** : [WT-46809] 170 lbs
  : [WS-55809] 250 lbs
  : [WS-55819] 244.5 lbs
  : [WS-65809] 323 lbs
  : [WS-65819] 323 lbs
- **Cabinet Dimensions** : [Model] (H)x(W)x(D)
  : [WT-46809] 38.4"x42.8"x27.1"
  : [WS-55809] 50"x50.6"x26.3"
  : [WS-55819] 50.4"x50.6"x26.4"
  : [WS-65809] 61.8"x58.7"x28.1"
  : [WS-65819] 61.8"x58.8"x28.1"
- **Input Level** : VIDEO IN JACK (RCA Type)
  1.0Vp-p 75Ω unbalanced
  : AUDIO IN JACK (RCA Type)
  -4.7dBm 43kΩ unbalanced
  : S-VIDEO IN JACK
  (Y/C separate type)
  Y:1.0 Vp-p C:0.286Vp-p(BURST)
  75Ω unbalanced
  : DVD / Y, Cr, Cb (RCA Type)
  Y: 1.0 Vp-p Cr, Cb: 700mVp-p
  : ATV / Y(G), Pr(R), Pb(B), H, V
  Y: 1.0Vp-p with sync 75Ω (BNC)
  Pr, Pb: 700mV 75Ω
  H, V: 3.0Vp-p 75Ω
- **Output Level** : VIDEO OUT JACK (RCA Type)
  1.0Vp-p 75Ω unbalanced
  : AUDIO OUT JACK (RCA Type)
  -4.7dBm 4.7kΩ unbalanced

- Weight and dimensions shown are approximate.
- Design specifications are subject to change without notice.

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INTRODUCTION

This service manual provides service instructions for PTV Models WT-46809, WS-55809 and WS-65809 which use the V18 chassis, and PTV Models WS-55819, and WS-65819 which use the V18+ chassis. Service personnel should read this manual thoroughly before servicing these chassis.

This service manual includes:

1. Assembly and disassembly instructions for the front and rear cabinet components.
2. Servicing of the Lenticular Screen and Fresnel Lens.
3. Servicing printed circuit boards (PCBs).
4. CRT replacement procedure.
5. Electrical adjustments.
6. Chip parts replacement procedures.
7. Circuit path diagrams.

The parts list section of this service manual includes:

1. Cabinet and screen parts.
2. Electrical parts.

Schematic and block diagrams of the above listed models are included in this service manual for better understanding of the circuitry. PCB drawings are also included for easy location of parts and test points.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have special safety characteristics are identified in this service manual.

Electrical components having such features are identified by shading on the schematic diagram and by **bold type** in the parts list of this service manual. **The replacement for any safety part should be identical in value and characteristics.**

SAFETY PRECAUTIONS

NOTICE: Observe all cautions and safety related notes located inside the receiver cabinet and on the receiver chassis.

WARNING:

1. Operation of this receiver outside the cabinet or with the cover removed presents a shock hazard from the receiver's power supplies. Work on the receiver should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment.
2. Do not install, remove or handle the picture tubes in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while the picture tube is being handled. Keep the picture tube away from the body while handling.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage area. Where a short-circuit has occurred, replace those components that indicate evidence of overheating.

X-Radiation warning

The surface of the cathode ray tubes (CRTs) may generate X-Radiation, so take proper precautions when servicing. It is recommended that a lead apron be used for shielding while handling the CRT. Use this method if possible.

When replacing the CRTs, use only the designated replacement part since it is a critical component with regard to X-Radiation. High voltage must be set as prescribed under the section titled Electrical Adjustments.

Leakage current check

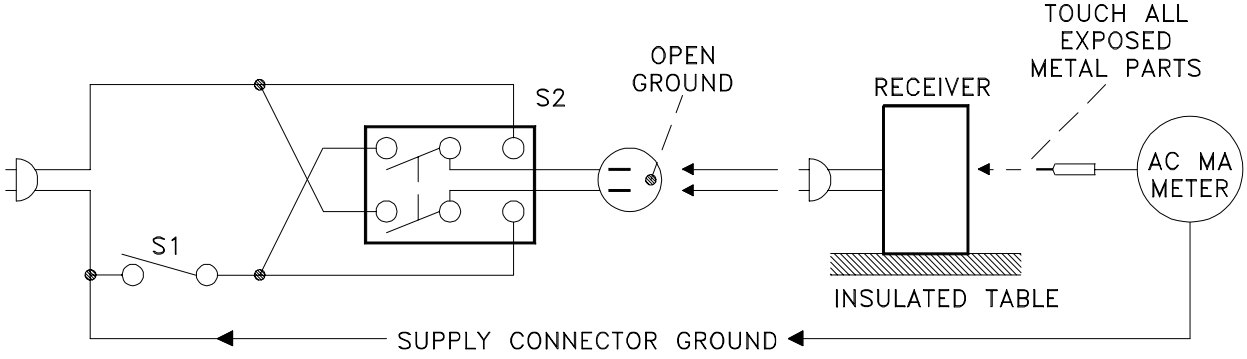
Before returning the receiver to the customer, it is recommended that leakage current be measured according to the following methods.

1. *Cold Check*

   With the alternating current (AC) plug removed from the AC source, place a jumper across the two AC plug prongs. Connect one lead of an ohm meter to the AC plug and touch the other lead to each exposed metal part (i.e. antennas, handle bracket, metal cabinet, screw heads, metal overlay, control shafts, etc.), particularly any exposed metal part that has a return path to the chassis. The resistance of the exposed metal parts having a return path to the chassis **should be a minimum of 1Mega Ohm**. Any resistance below this value indicates an abnormal condition and requires corrective action.

2. *Hot Check ...Use the circuit shown below to perform the hot check test.*

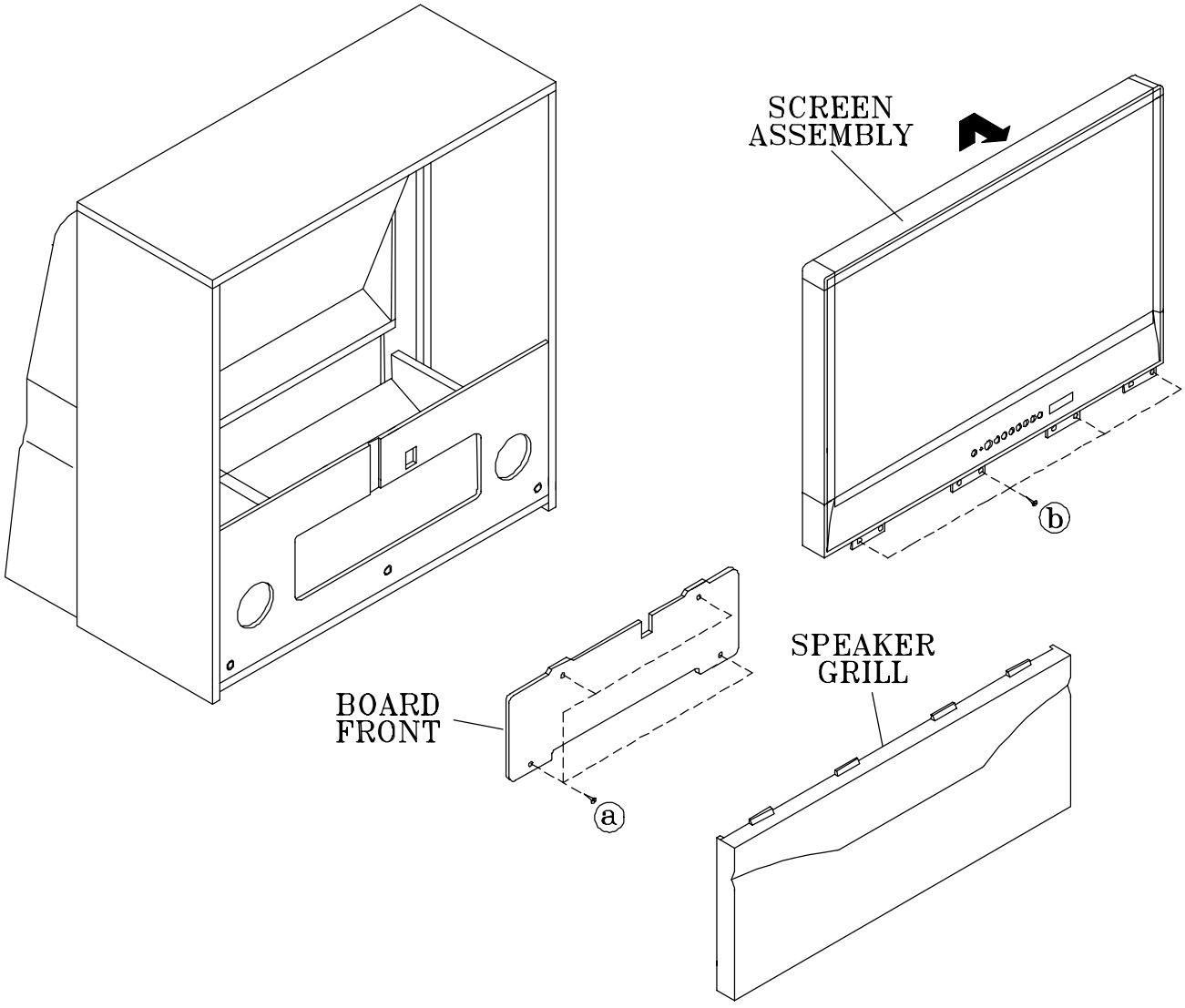
   1. Keep switch S1 open and connect the receiver to the measuring circuit. Immediately after connection, and with the switching devices of the receiver in their operating positions, measure the leakage current for both positions of switch S2.
   2. Close switch S1, energizing the receiver. Immediately after closing switch S1, and with the switching devices of the receiver in their operating positions, measure the leakage current for both positions of switch S2. Repeat the current measurements of items 1 and 2 after the receiver has reached thermal stabilization. **The leakage current must not exceed 0.5 milliampere (mA).**



CABINET DISASSEMBLY (FRONT VIEW)

WT-46809

***Refer to the Parts List for Part Numbers**



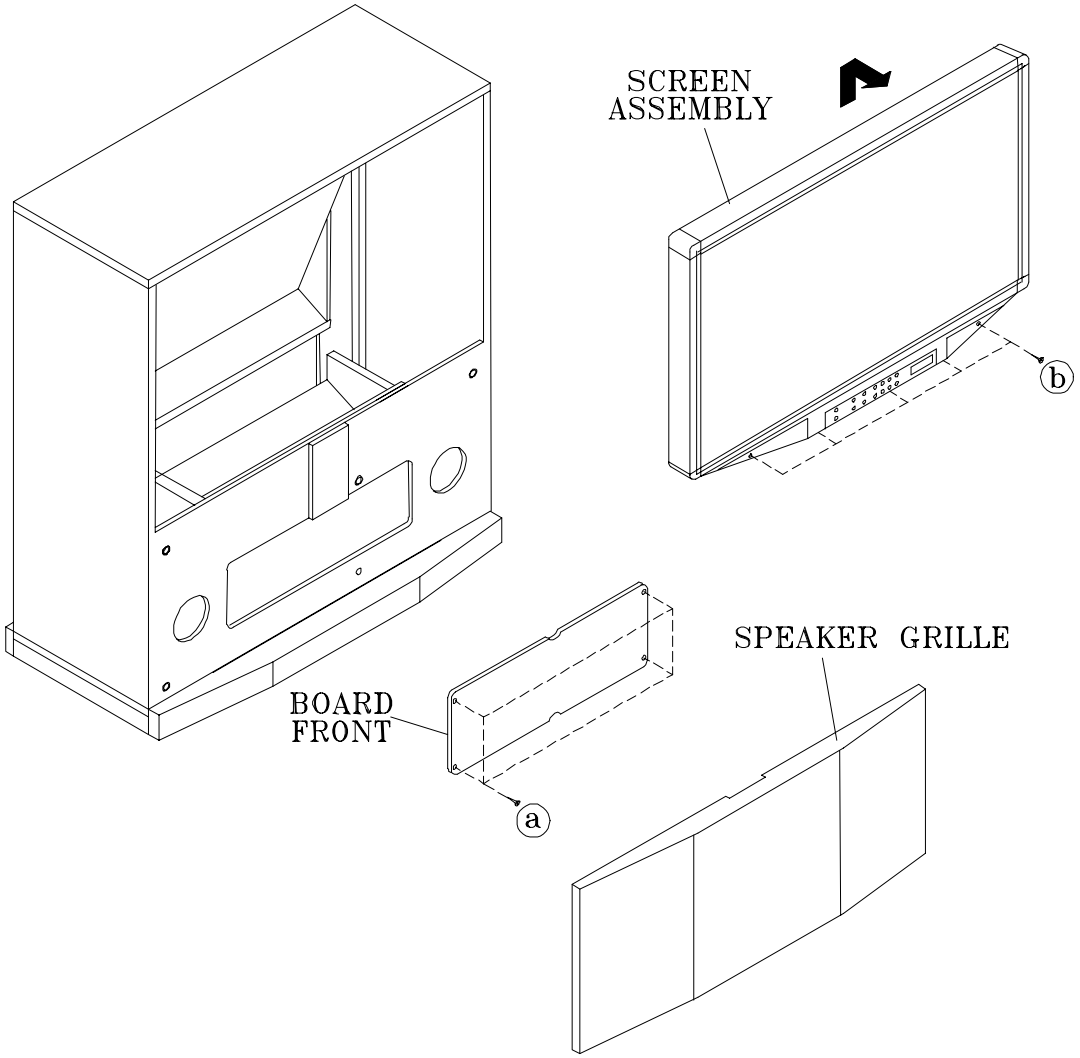
1a. Front Cabinet Disassembly

1. Remove the Speaker Grille by pulling forward.
2. Remove the Board Front by removing 4 screws (a).
3. Remove the 4 screws (b) holding the Screen Assembly.
4. Lift the Screen Assembly up and away from the cabinet.

CABINET DISASSEMBLY (FRONT VIEW)

WS-55809 / WS-65809

***Refer to the Parts List for Part Numbers**



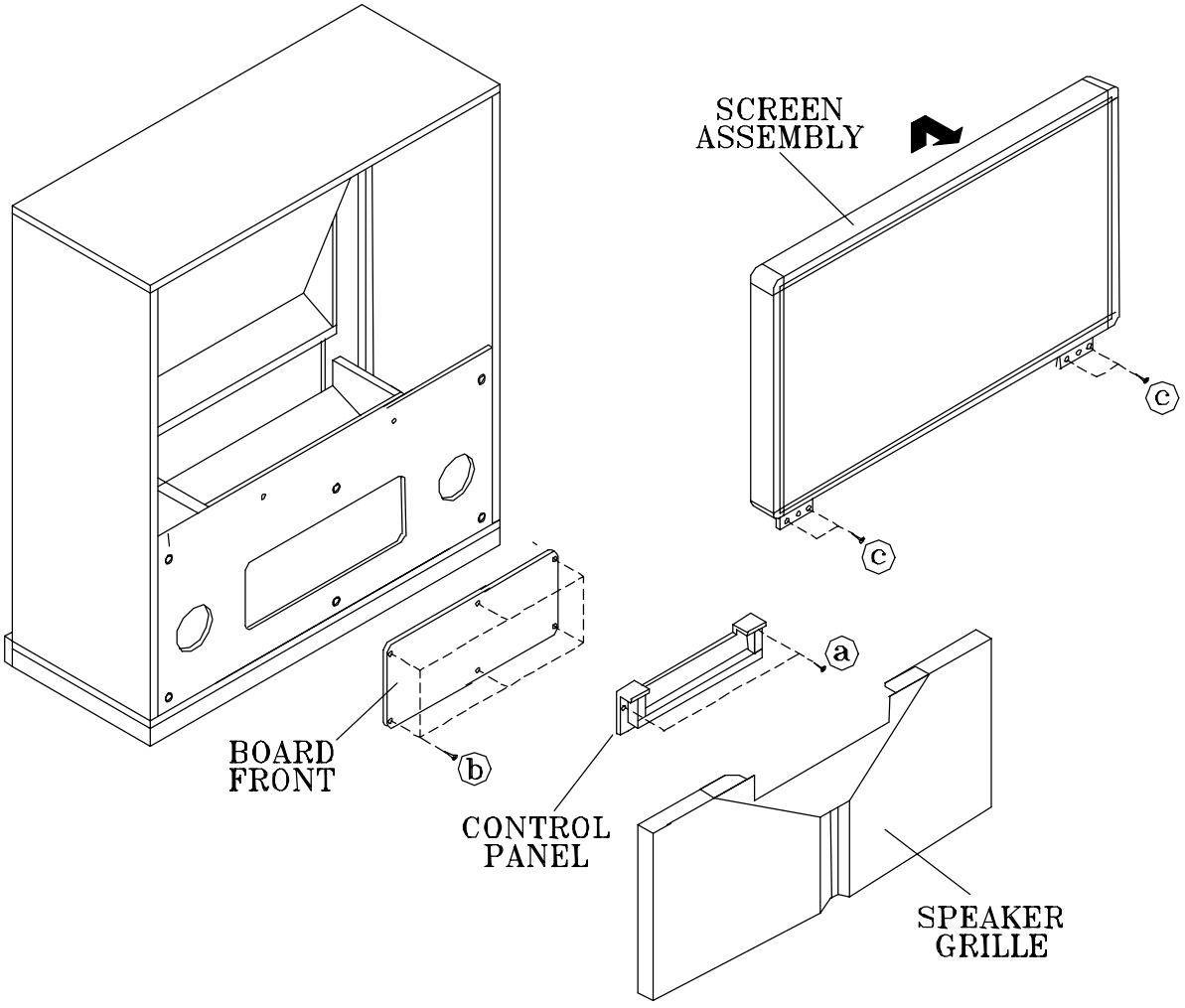
1b. Front Cabinet Disassembly

1. Remove the Speaker Grille by pulling forward.
2. Remove the Board Front by removing 4 screws (a).
3. Remove the 5 screws (b) holding the Screen Assembly.
4. Lift the Screen Assembly up and away from the cabinet.

CABINET DISASSEMBLY (FRONT VIEW)

WS-55819 / WS-65819

***Refer to the Parts List for Part Numbers**



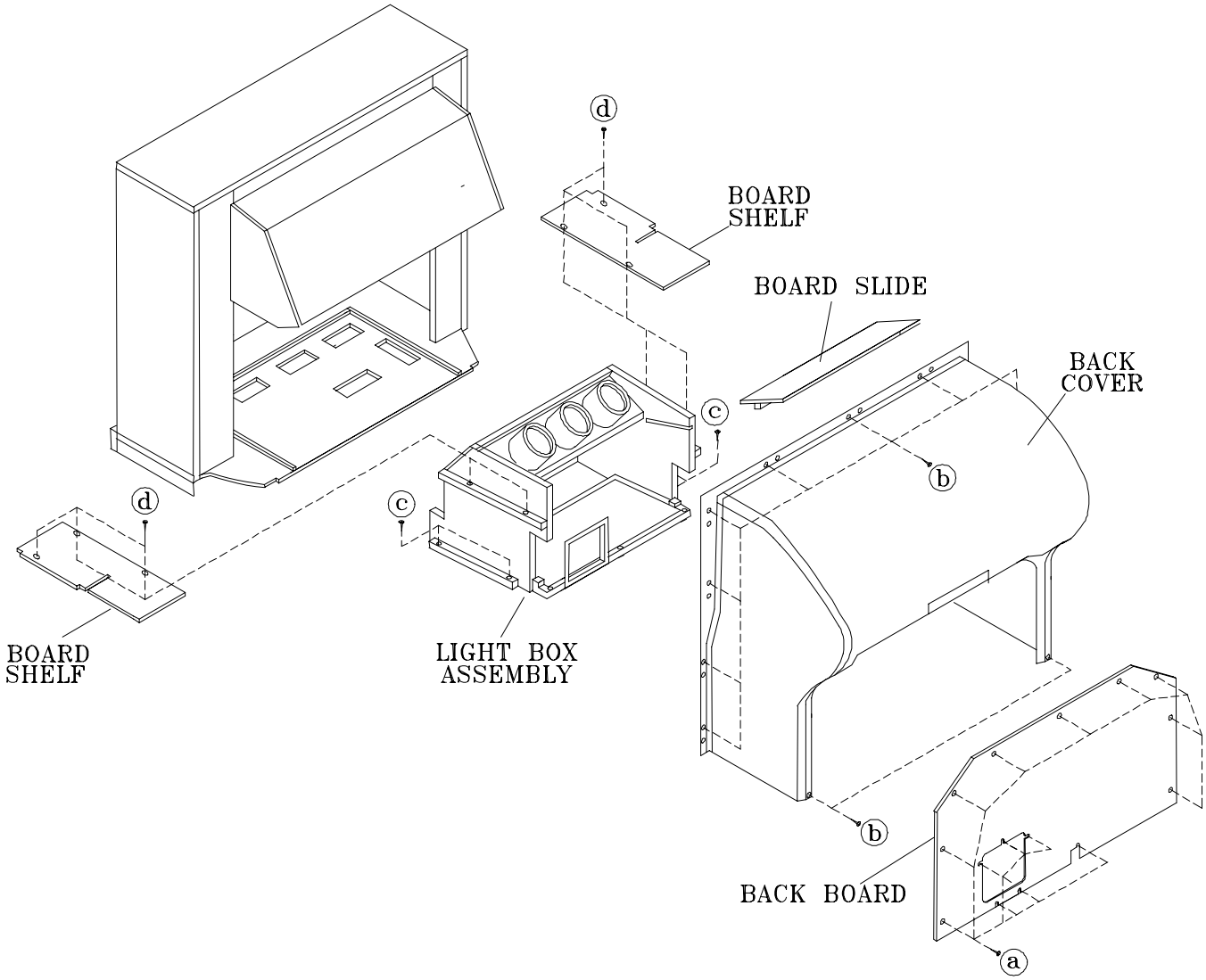
1c. Front Cabinet Disassembly

1. Remove the Speaker Grille by pulling forward.
2. Remove 2 screws (a) to remove the Control Panel.
3. Remove the Board Front by removing 4 screws (b).
4. Remove the 4 screws (c) holding the Screen Assembly.
5. Lift the Screen Assembly up and away from the cabinet.

CABINET DISASSEMBLY (REAR VIEW)

WT-46809

***Refer to the Parts List for Part Numbers**



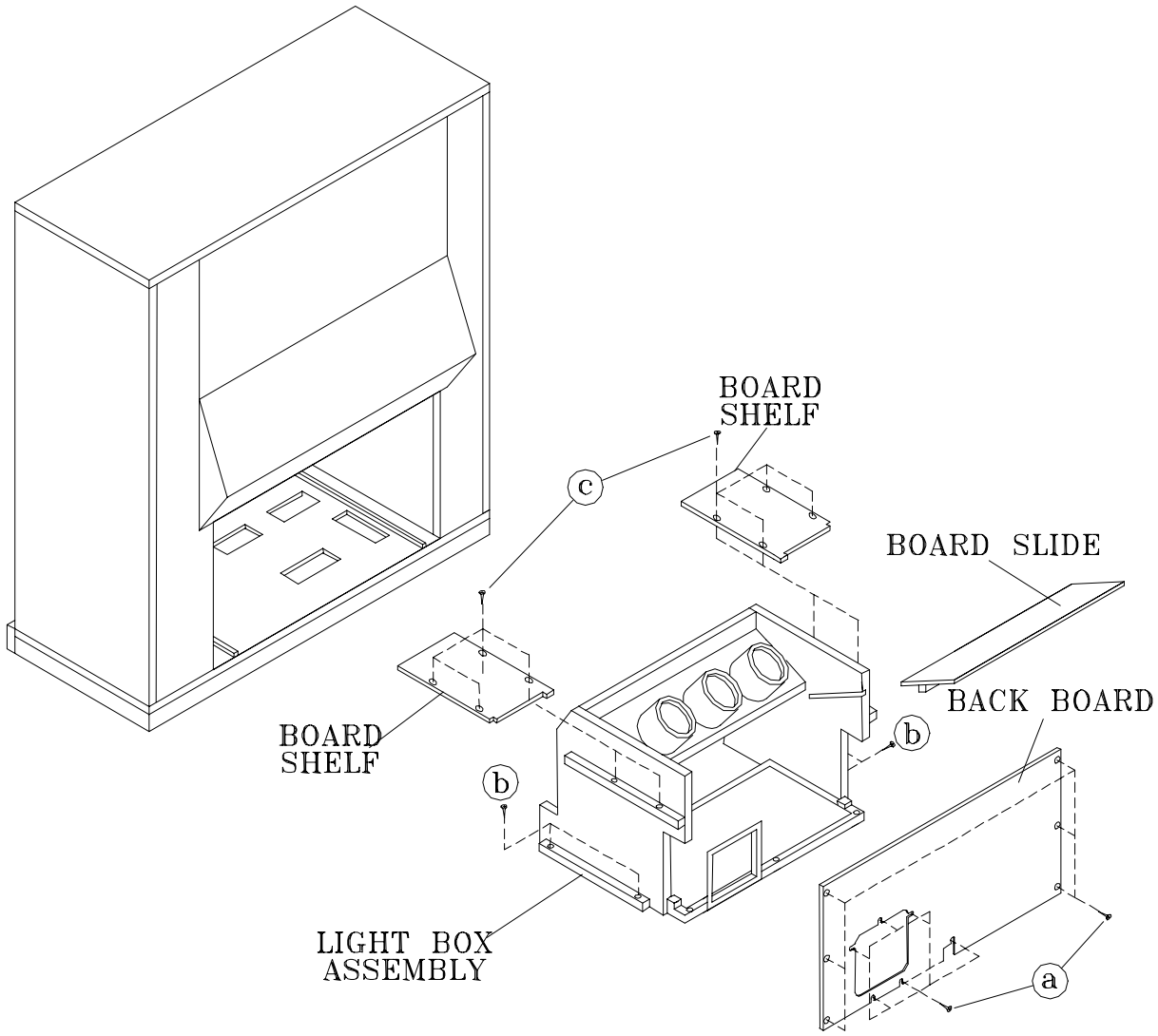
2a. Rear Cabinet Disassembly

1. Remove 15 screws (a) holding the Back Board.
2. Remove the 13 screws (b) holding the Back Cover.
3. Remove the 3 screws (d) securing each Board Shelf.
3. Remove the 4 screws (c) securing the Light Box Assembly.
4. Slide the Light Box out the rear of the Cabinet.

CABINET DISASSEMBLY (REAR VIEW)

WS-55809 / WS-55819 / WS-65809 / WS-65819

***Refer to the Parts List for Part Numbers**



2b. Rear Cabinet Disassembly

1. Remove 12 screws (a) holding the Back Board.
2. Remove the 4 screws (c) holding each Board Shelf.
3. Remove the 4 screws (b) securing the Light Box Assembly.
4. Slide the Light Box out the rear of the Cabinet.

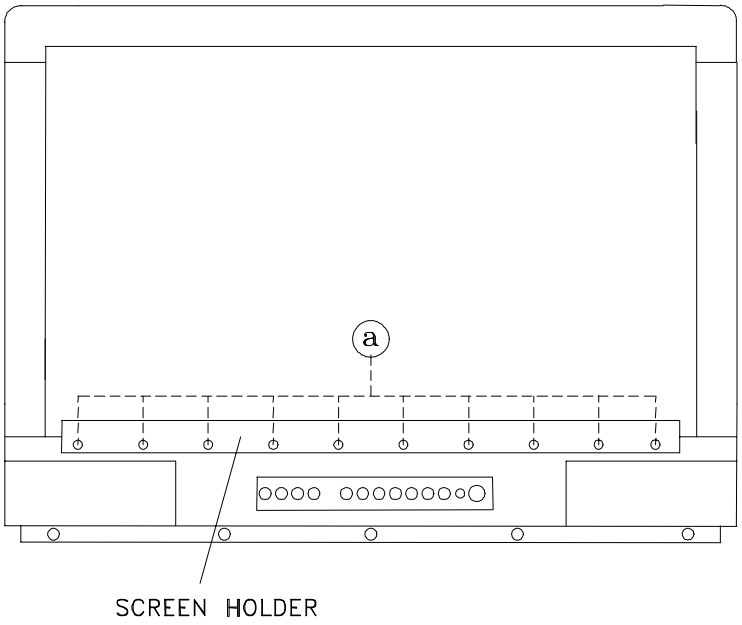
SERVICING THE LENTICULAR SCREEN AND FRESNEL LENS

CAUTION: **Wear gloves** when handling the Lenticular Screen and Fresnel Lens. This prevents cuts and finger prints. **Do not place Fresnel Lens in the sun**. This may cause fire and heat related injuries.

WT-46809 / WS-55809 / WS-65809
1a. Lenticular Screen and Fresnel Lens Removal

1. Remove the screen assembly shown in the Cabinet Disassembly procedure.
2. Remove the screws (a) securing the Screen Holder.
3. Slide the Lenticular Screen and Fresnel Lens from the Screen Frame.

Note: When separating the Lenticular Screen from the Fresnel Lens, use caution while prying the Screen and Lens apart. Use a slot type screw drive, and remove the pressure sensitive double sided tape.



SERVICING THE LENTICULAR SCREEN AND FRESNEL LENS

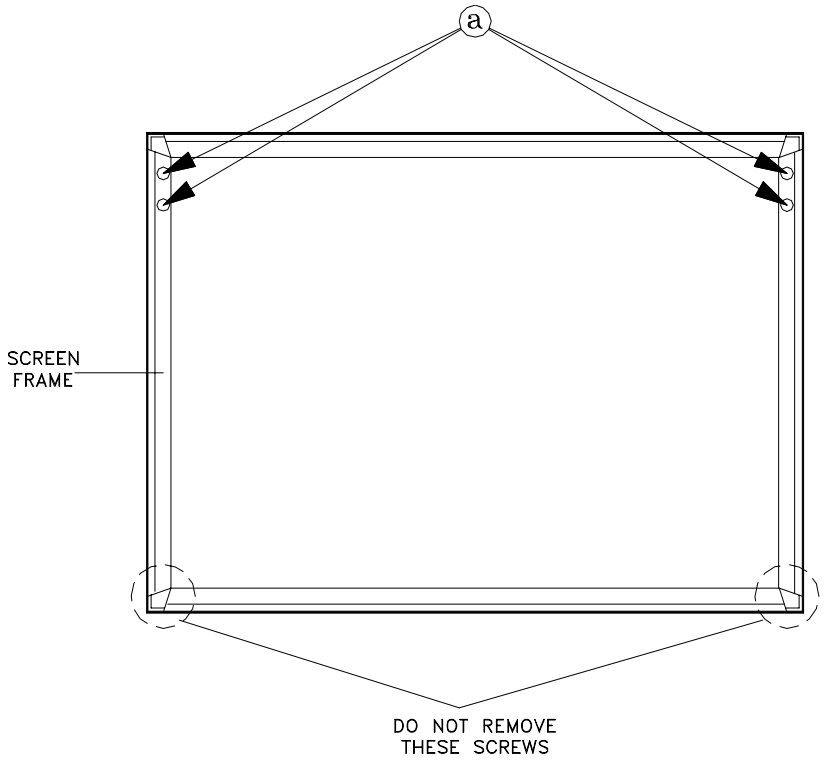
CAUTION: **Wear gloves** when handling the Lenticular Screen and Fresnel Lens. This prevents cuts and finger prints. **Do not place Fresnel Lens in the sun**. This may cause fire and heat related injuries.

WS-55819 / WS-65819

1a. Lenticular Screen and Fresnel Lens Removal

1. Remove the screen assembly shown in the Cabinet Disassembly procedure.
2. Remove the Screen Frame top section by removing 4 screws (a).
3. Carefully grasp the Lenticular Screen and Fresnel Lens combination and pull upward and out of the Screen Frame Assembly.

Note: When separating the Lenticular Screen from the Fresnel Lens, use caution while prying the Screen and Lens apart. Use a slot type screw drive, and remove the pressure sensitive double sided tape.

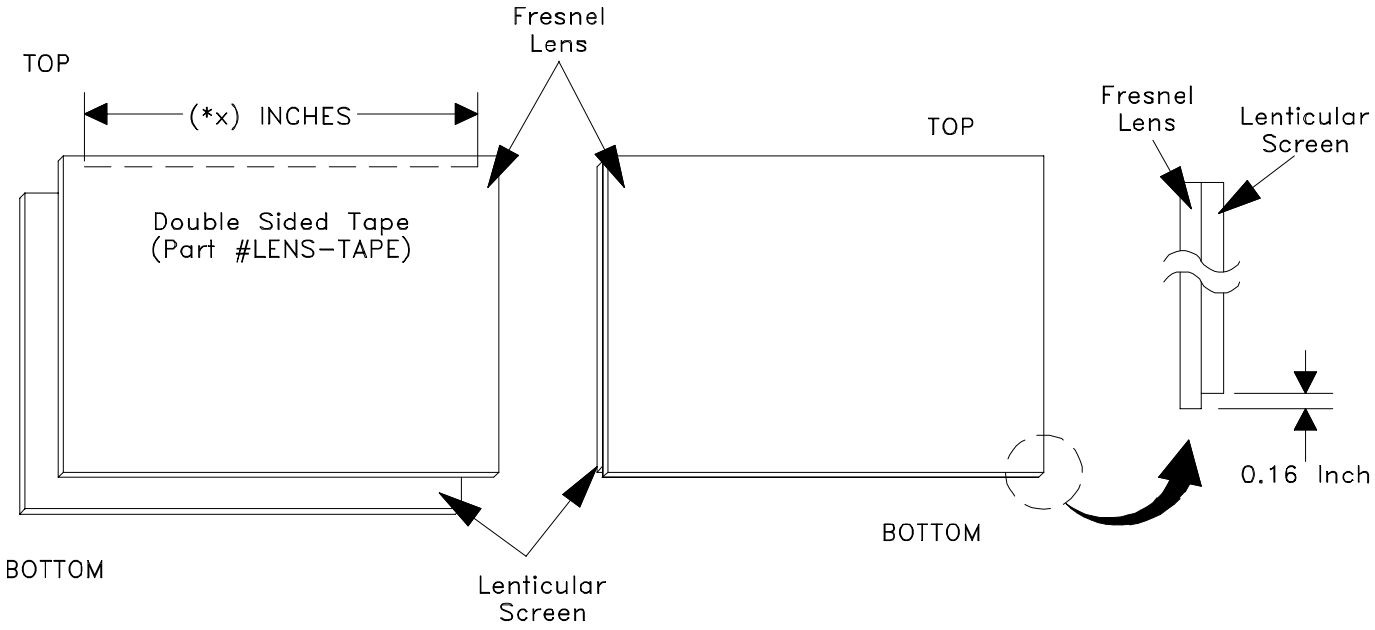


SERVICING THE LENTICULAR SCREEN AND FRESNEL LENS

2. Lenticular Screen and Fresnel Lens Installation.

Note: Store the Lenticular Screen and Fresnel Lens in a cool dry place. High humidity may deform the Lenticular Screen and Fresnel Lens.

1. Apply double coated tape (Part # LENS-TAPE) along the top front edge of the Fresnel Lens as shown below. Refer to the Table below for proper tape length.
2. Place the Fresnel Lens on top of the Lenticular Screen and apply pressure at the top edge to bond them together as shown below.



Model	Screen Size	Tape Length
WT-46809	46"	40"
WS-55809	55"	47.8"
WS-55819	55"	47.8"
WS-65809	65"	56.5"
WS-65819	65"	56.5"

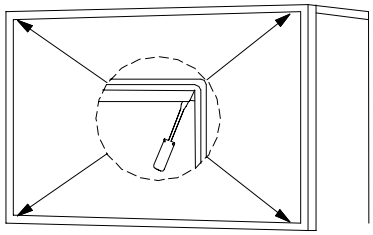
SERVICING THE DIAMONDSHIELD™

1. DiamondShield™ Removal Procedure

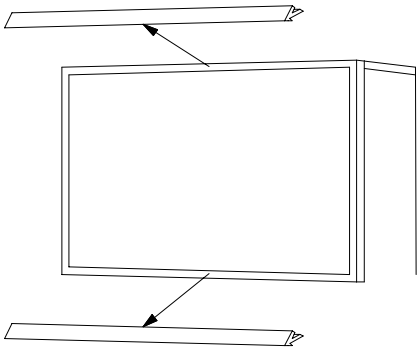
The location of the DiamondShield™ molding clips varies between models, top and bottom, or sides. Use the appropriate disassembly procedure given below.

Note: ***Wear gloves when handling the DiamondShield™ to prevent finger prints.***

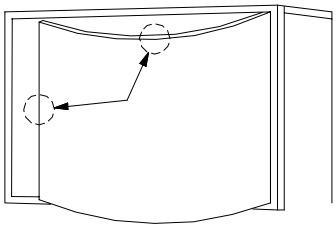
Top & Bottom Molding Clips



1. Gently insert a small screwdriver between the DiamondShield™ and one end of the clip to pry the clip loose.

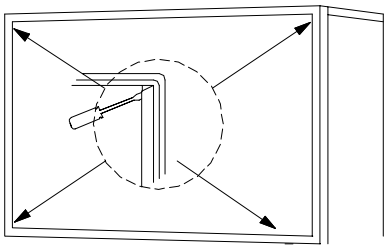


2. Remove both clips by pulling them toward you.

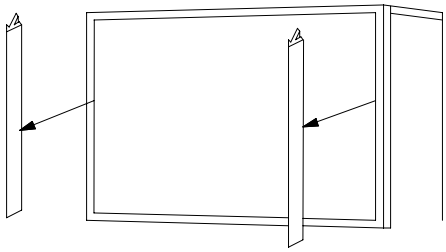


3. Carefully insert a small screwdriver into the gap at the top/center point of the Shield and pull the Shield slightly away from the unit. Place your hands at the points shown and gently bow the Shield toward you and remove from the unit. Then re-install the two clips.

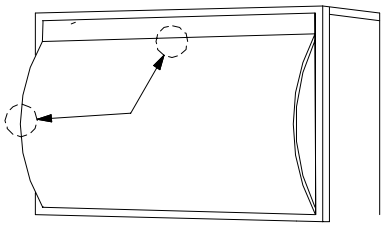
Side Molding Clips



1. Gently insert a small screwdriver between the DiamondShield™ and one end of the clip to pry the clip loose.



2. Remove both clips by pulling them toward you.



3. Carefully insert a small screwdriver into the gap at the side/center point of the Shield and pull the Shield slightly away from the unit. Place your hands at the points shown and gently bow the Shield toward you and remove from the unit. Then re-install the two clips.

2. DiamondShield™ Installation Procedure

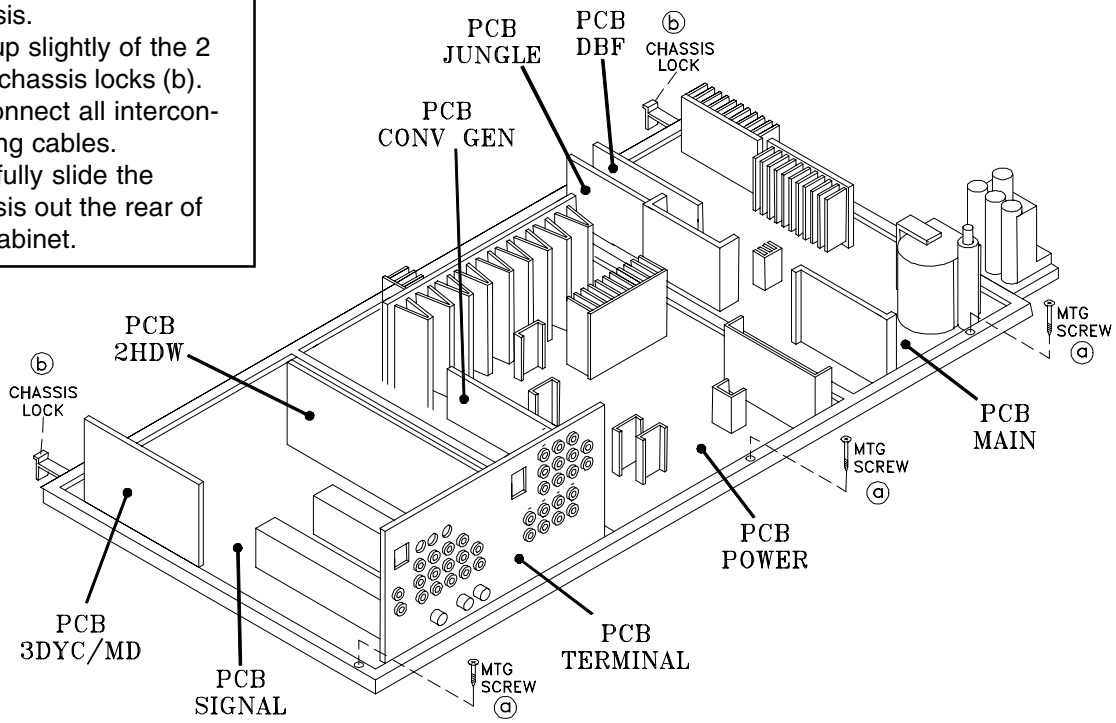
*(See the Parts List for DiamondShield™ part numbers)

To install the DiamondShieldTM, reverse the above Removal Procedure.

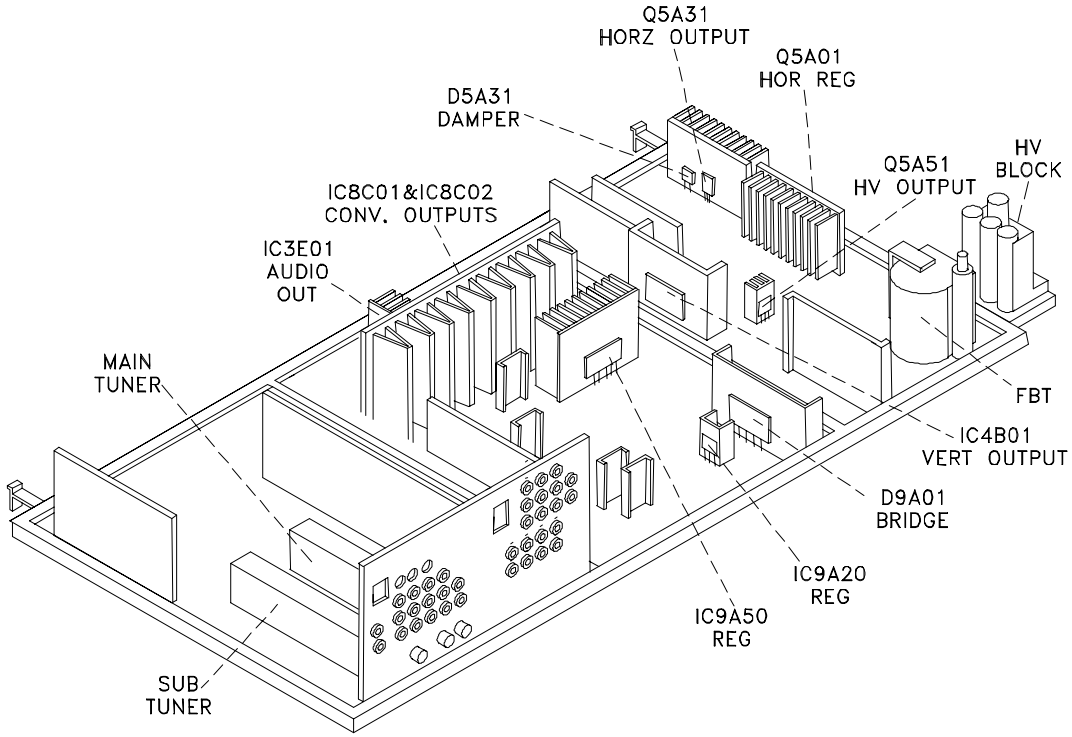
PCB Locations and Chassis Removal

Chassis Removal

1) Remove the 3 screws (a) securing the rear of the chassis.
2) Pull up slightly of the 2 front chassis locks (b).
3) Disconnect all interconnecting cables.
4) Carefully slide the chassis out the rear of the cabinet.



Main Components Location



CRT REPLACEMENT

1. Removal of the CRT

Caution! High voltage should be completely discharged prior to CRT removal. Since The CRTs receive high voltage from the HV Block, discharge by shorting the open end of the respective high voltage cable to chassis ground.

Note: Refer to the Cabinet Disassembly Procedures when performing steps 1 through 4.

1. Remove the Speaker Grille, Front Board, and Screen Assy.
2. Remove the Back Board.
3. Remove the Anode Lead Wire from the CR Block.
4. Remove the PCB-CRT.
5. Remove 4 hex-screws "a" retaining the Optical Unit. [Figure 5-1]
6. Remove 4 screws "b" retaining the Lens.

Note: DO NOT loosen the RED screws. Doing so will break the seal between the C-Element and the # 6 Lens, causing leakage of the CRT Coolant.

7. Remove 4 screws "c" retaining the CRT. [Figure 5-2]
8. Remove the Deflection Yoke from the neck of the CRT. [Figure 5-7]

Figure 5-1

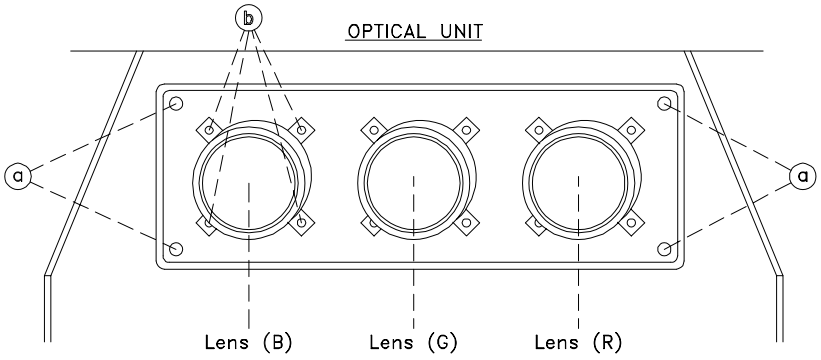
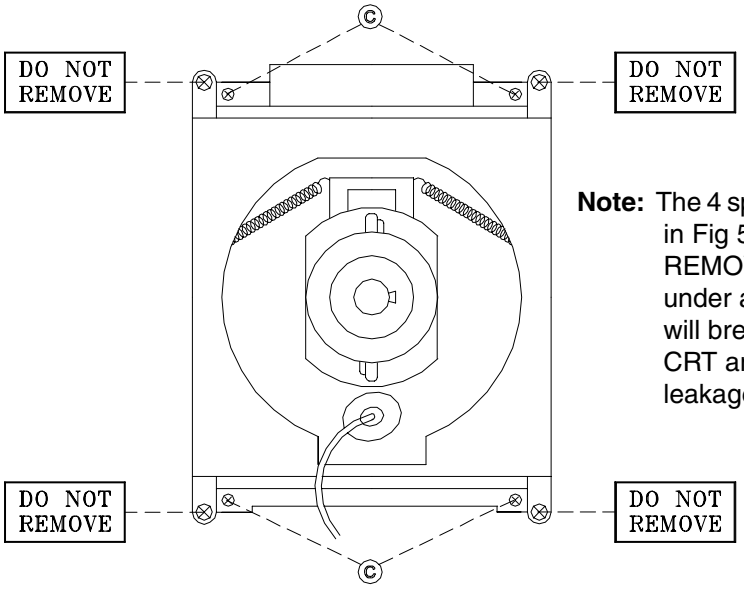


Figure 5-2



Note: The 4 spring-loaded screws shown in Fig 5-2 and labeled as "DO NOT REMOVE", should not be loosened under any circumstance. Doing so will break the seal between the CRT and the CRT-Spacer, causing leakage of the CRT Coolant.

2. Installation of the CRT

Note: The replacement CRT is supplied as an assembly comprised of the CRT and the Inner Lens with the space between them filled with ethylene glycol. Care should be taken during handling and installation to prevent shock from disrupting the seal or alignment between the CRT and Inner Lens. [Figure 5-3]

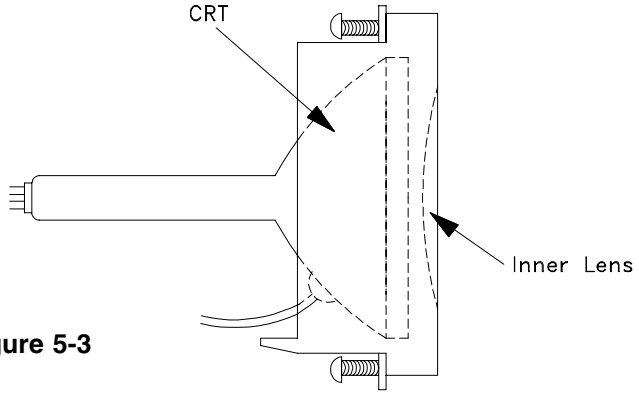


Figure 5-3

Note: The CRT fixing screws should not be loosened nor should they be removed. [Figure 5-4]

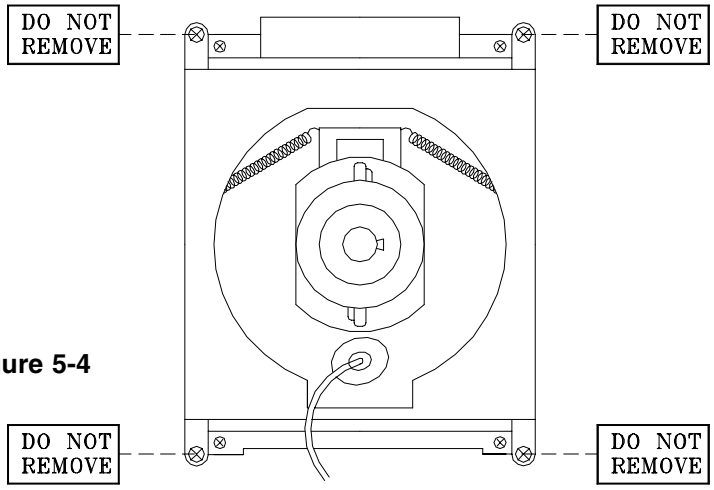


Figure 5-4

1. Carefully position the replacement CRT and fasten in place using 4 screws "d". [Figure 5-6]

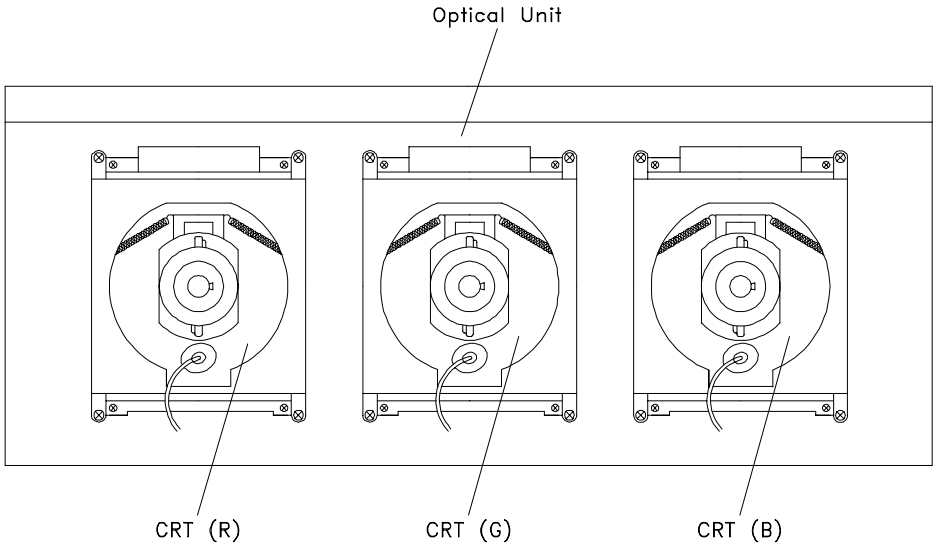


Figure 5-5

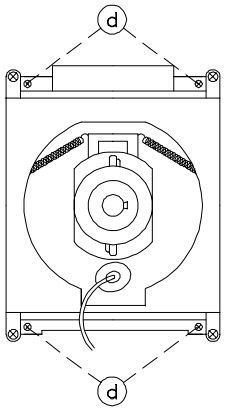


Figure 5-6

2. Install the Deflection Yoke on the CRT neck. [Figure 5-7]
3. Install the Lens that was removed in steps 8 and 9 of Removal Of The CRT. [Figures 5-1 and 5-2]
    a) Position the Lens so that the Label faces the direction shown in Figure 5-8.
    b) Install the mounting screws. [Figure 5-1]
4. Connect the PCB-CRT.
5. Insert the Optical Unit into the Light Box Assembly.
6. Insert the Anode Lead Wire into the Flyback Transformer.
7. Re-clamp the Lead Wire in its original position.

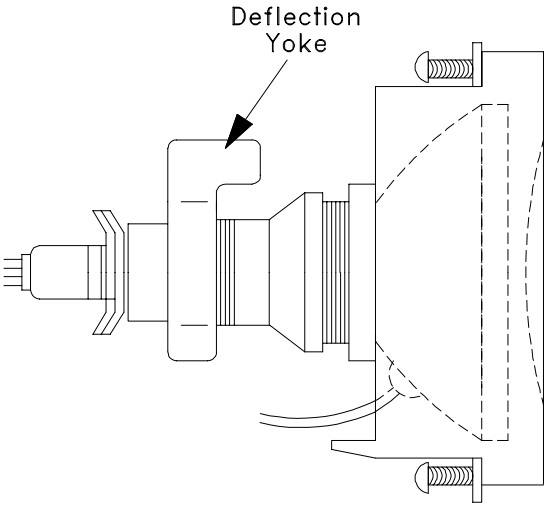


Figure 5-7

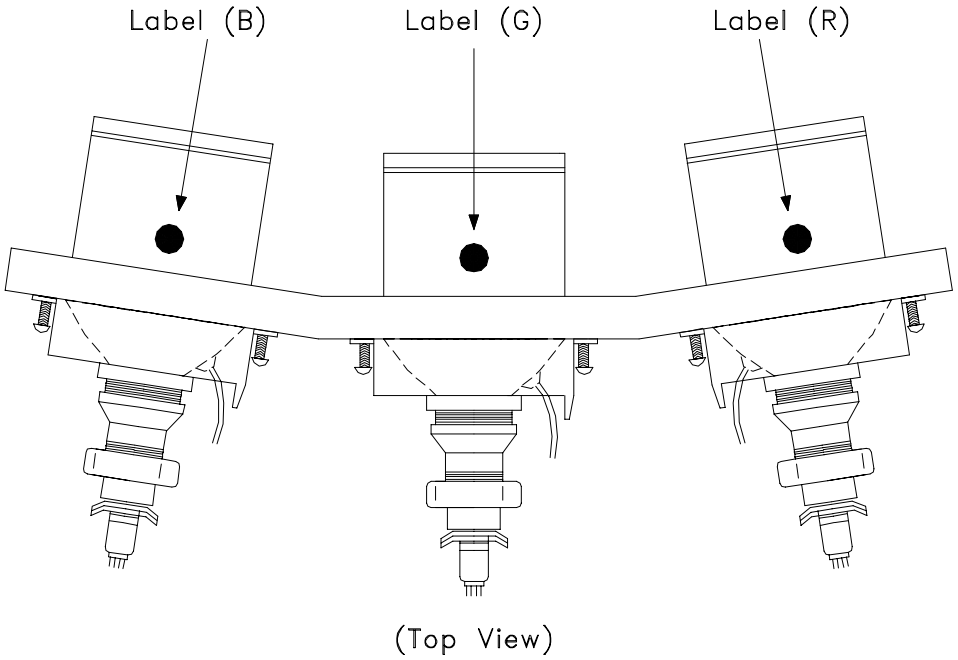


Figure 5-8

Adjustment procedures after replacing the CRT(s)

- CRT Cut Off / White Balance Adjustment
- Static Convergence Adjustment
- Dynamic Convergence Adjustment

ELECTRICAL ADJUSTMENTS

Note: Perform only the adjustments required.
Do not attempt an alignment if proper equipment is not available.

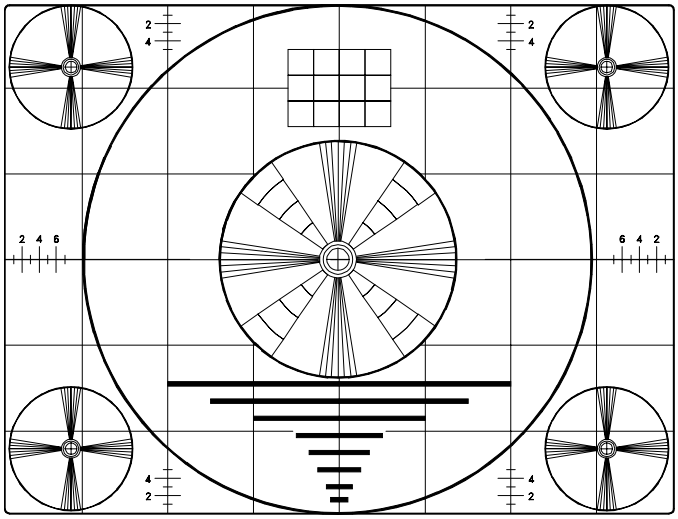
1. Test Equipment

- Oscilloscope (Unless otherwise specified, use 10:1 probes)
- Signal Generator (both SD and HD capable)
- Frequency Counter
- Direct Current Voltmeter
- Direct Current Power Supply
- Multiplex Audio Signal Generator
- Direct Current Ampere Meter

2. Test Signal

A. Monoscope Signal

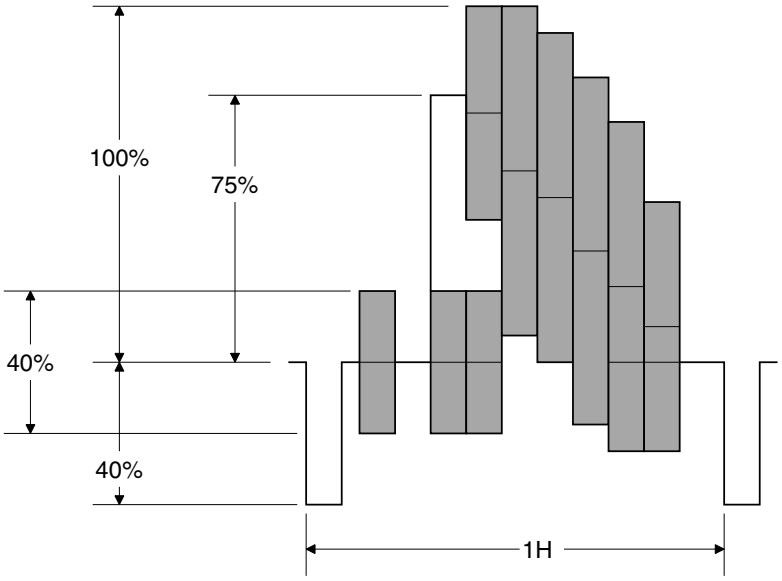
Note: If you do not have a monoscope signal source, connect the unit to a VCR and play a Monoscope *alignment tape.
(* Part Number: 859C568060)



Monoscope Signal

B. Color Bar Signal

Use the color bar signal shown below, unless otherwise specified in this manual.



Split-Field Color Bars (100% window)

3. Initial Setup

A. Option Menu Setup

Follow the steps below for the initial set-up:

1. Select the "MENU" display by pressing the "MENU" button once.
2. Press the number buttons "0", "1", "7", "0" in sequence to select the "OPTION MENU" display.
3. Press the "ADJUST" button to select "INITIAL."
4. Press "ENTER."

   NOTE: At this time channel 3 is automatically selected.

(MENU-0-1-7-0)

OPTION MENU	
Initial	
Power restore	:OFF
DTV Port	:Auto

B. Default Settings

MAIN MENU DEFAULT SETTINGS

SETUP	
Memorize Channels	ANT A
Language	English
CLOCK	
Clock Setting	Auto
Time Zone	Eastern
Daylight Savings	Applies
Clock Time	N/A
Set Day	N/A
AV CONNECTION	
AV Network	OFF
External Audio System	NO
AV Receiver at Input 1	None
Audio Output	Variable
INPUT ASSIGNMENT	
Antenna A	On
Antenna B	On
DTV	YPrPb
Input 1	Input-1
Input 2	Input-2
Input 3	Input-3
Input 4	Input-4
Component 1	Comp. 1
component 2	Comp. 2
CAPTIONS	
Closed Captions	With Mute
CC Background	Gray

CHANNEL EDIT	
Input	ANT A
Channel	3
Memory	Deleted
Name	N/A
SQV	N/A
TIMER	
Timer	Off
Set Time	12:00PM
Set Day	Everyday
Input	ANT A
Channel	3
V-CHIP PARENT LOCK	
V-CHIP	Off
TV Rating	TV-PG
FV-Fantasy Violence	Allow
D-Sexual Dialog	Allow
L-Adult Language	Allow
S-Sexual Situation	Allow
V-Violence	Allow
Program not Rated	Allow
Movie Rating	PG
V-CHIP LOCK BY TIME	
V-Chip Start Time	12:00 AM
V-Chip Stop Time	12:00 AM
Lock by Time	Off
Lock Time	N/A
Unlock Time	N/A

ADVANCED FEATURES	
SD Video Format	480P
Video Mute	On
Black Level Expansion	On
AUDIO SETTINGS	
Volume	30%
Bass	50%
Treble	50%
Balance	50%
Surround	Off
Listen to	Stereo
Level Sound	Off
VIDEO SETTINGS	
Iris	Off
Contrast	100%
Brightness	50%
Sharpness	50%
Color	50%
Tint	50%
Color Temp.	High
Video Noise	Standard
Image Type	Video
PIP/POP	
Source	Ant A Ch 3
PIP Position	Lower Right
POP Position	Right Half
Format	Stretched
PIP/POP Format	Dble. Window

A/V RESET DEFAULT SETTINGS (By Input)

A/V Memory	ANT-A/B	DTV	INPUTS 1-4	DVD-1/2
Iris	OFF			
Contrast	Max.	Max.	Max.	Max.
Brightness	Center	Center	Center	Center
Sharpness	Center	Center	Center	Center
Color	Center	Center	Center	Center
Tint	Center	Center	Center	Center
Color Temp.	High	High	High	High
Video Noise	Standard	Standard	Standard	Standard
Image Type	Video	Video	Video	Video
Bass	Center	Center	Center	Center
Treble	Center	Center	Center	Center
Balance	Center	Center	Center	Center
Surround	OFF	OFF	OFF	OFF
Listen To	Stereo	N/A	N/A	N/A
Level Sound	OFF	OFF	OFF	OFF

C. A/V Memory

Each of the external inputs has its' own Audio/Video Memory. A change in an A/V setting at a specific input is stored in memory for that specific input.

A/V Reset

1. The front panel AV Reset button initializes all A/V Memories.
2. The AV Reset in the user's menu initializes only the selected input's A/V Memory.

4. LED Indicator Diagnostics

The "Power ON LED" provides an indication of the sets operation, and the possible cause of a malfunction.

1. Initial Control Circuitry Check

Immediately after the TV is connected to an AC power source:

- The LED flashes three times ... indicating the Microprocessor has initialized and is functioning properly.
- If the LED does not flash ... the Microprocessor is NOT functioning.

2. Error Code Operational Check

Pressing the front panel "INPUT" and "MENU" buttons at the same time, and holding for 5 seconds, activates the Error Code Mode. The LED flashes denoting a two digit Error Code, or indicating no problem has occurred since the last Initialization.

Note: The front panel buttons must used, NOT those on the Remote Control.

- The number of flashes indicates the value of the MSD (tens digit) of the Error Code.
- The flashing then pauses for approximately 1/2 second.
- The LED then flashes indicating the value of the LSD (ones digit) of the Error Code.
- The Error Code is repeated a total of 5 times.

  Example: If the Error Code is "24", the LED will flash two times, pause, and then flash four times.

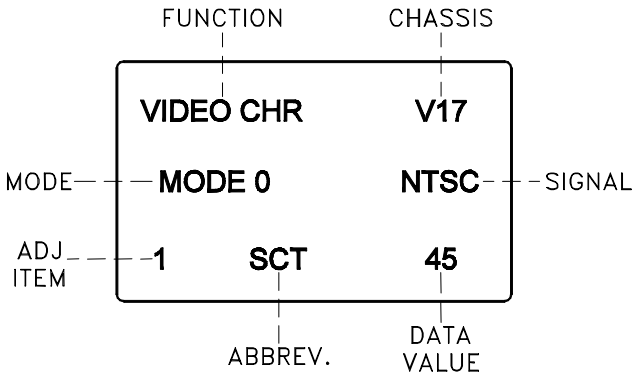
3. Error Codes

The Error Code designations indicating a malfunction, or no malfunction, are listed below:

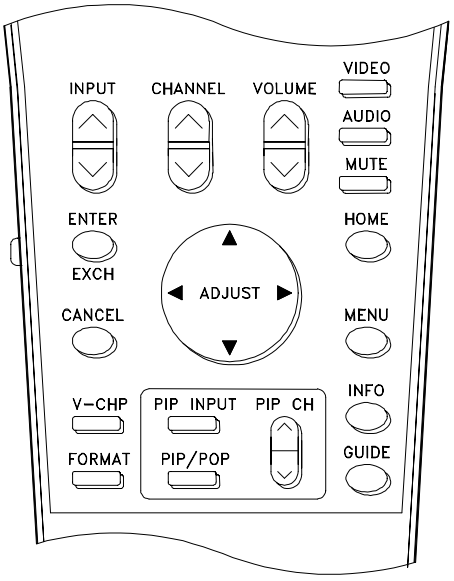
"12" ... indicates no error has occurred.
"21" ... X-Ray Protect circuit.
"22" ... Short Protect circuit.
"23" ... Horizontal Deflection failure.
"24" ... Vertical Deflection failure.

5. Circuit Adjustment Mode

Most of the adjustments can only be performed using the remote hand unit. Many of the adjustments must be performed in both the NTSC and HD modes. Video/Color adjustments must be performed in the NTSC and HD modes, and data must be preset in the 480P (DVD) and VGA modes.



A. Activating the Circuit Adjustment Mode



The current signal source determines if the activated Adjustment Mode is NTSC or HD.

1. Select the signal source (NTSC or HD).
2. Press the "MENU" button on a remote hand unit.
3. Press the number buttons "0", "1", "5", "7" in sequence. The screen will change to the Adjustment Mode.

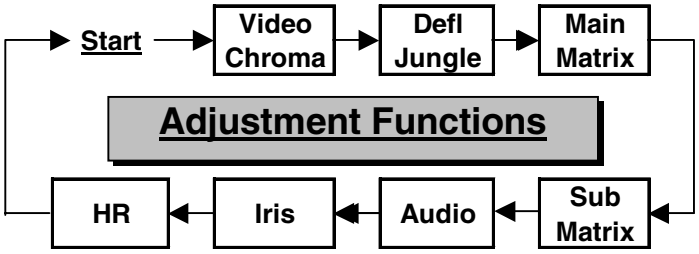
   Note: Repeat steps 1 and 2 if the circuit adjustment mode does not appear on screen.

B. Selection of adjustment Functions and Adjustment Items

To select an adjustment item in the circuit adjustment mode, first select the adjustment function that includes the specific adjustment item to be selected. Then select the adjustment item.

Refer to the following pages for the listing of adjustment functions and adjustment items.

1. Press the "AUDIO" button on a remote hand unit to select an adjustment function. Each time the button is pressed, the Function changes in the following sequence:



2. Press the “VIDEO” button to select a specific Adjustment Item. The Item number increases each time the “VIDEO” button is pressed.

C. Changing Data

After selecting an adjustment Item, use the “ADJUST UP/DOWN” button to change data.

- Press “ADJUST DOWN” to decrease the data value.
- Press “ADJUST UP” to increase the data value.

D. Saving Adjustment Data

Press “ENTER” to save adjustment data in memory. The character display turns red for approximately one second in this step.

Note: If the circuit adjustment mode is terminated without pressing “ENTER”, changes in adjustment data are not saved.

E. Terminating the Circuit Adjustment Mode

Press the “MENU” button on the remote hand unit twice to terminate the adjustment mode.

Note: The circuit adjustment mode can also be terminated by turning power OFF.

F. Toggle Between Reception Modes

Pressing “3” when in the Adjustment Mode toggles between NTSC, HD, 480P and VGA. However data changes are not automatically saved. **Press “ENTER” to save data before pressing “3”**.

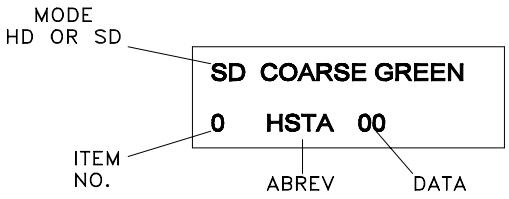
6. Convergence Adjustment Mode

The Convergence mode is used to perform raster geometry correction, and convergence adjustments. These adjustments must be made in both the SD (NTSC) and HD modes.

A. Convergence Mode Activation

1. Press MENU-0-1-5-9

2. When the Convergence Mode is activated, the display below appears on a Green Crosshatch.



B. Selecting the HD or SD Mode

1. **Select the Signal Source** before entering the Convergence Mode, either an NTSC or HD source.

2. **Enter the Convergence Mode**
   - If the signal source is NTSC, the SD mode is activated.
   - If the signal source is HD, the HD mode is activated.

3. **Activating the HD mode when no HD signal is available**
   - Activate the Factory Option Menu (MENU-0-1-7-0)
   - Use the “Adjust” keys to select “DTV Port” and use the “Enter” key to change the setting from “AUTO” to “1080i”.
   - Exit the Option Menu (Press MENU twice)
   - Select the DTV Inputs as the signal source (INPUT button)
   - Activate the Convergence Mode ... the Convergence mode will be in the HD mode and the internal crosshatch is displayed.

4. **After adjusting Convergence, be sure to set the DTV Port back to AUTO.**
   - Select an analog Input as the signal source (INPUT button)
   - Activate the Factory Option Menu (MENU-0-1-7-0)
   - Use the “Adjust” keys to select “DTV Port” and use the “Enter” key to change the setting from “HD” to “AUTO”.
   - Exit the Option Menu (Press MENU twice)

C. Convergence Mode Functions

In the Convergence Mode there are three main Functions (Categories).

- Pressing “6” activates CONV MISC
- Pressing “5” activates COARSE CONV
- Pressing “4” activates FINE CONV

D. CONV MISC (Press 6)

This mode is used to preset data values controlling the Convergence Generator, and to perform the HV Regulation adjustment.

1. Use the VIDEO button to select an item.
2. Use the ADJUST buttons to change data.

NOTE: When Item "0 HVOL" is selected the screen goes black except for the data display. This occurs since a black screen is required when making the HV Regulation adjustment.

E. COARSE CONV (Press 5)

There are four Sub Functions in the Coarse mode, COARSE GREEN, COARSE RED, COARSE BLUE and DF.

- COARSE GREEN .... used to make Coarse Raster Geometry Adjustments.
- COARSE RED ... used to make Coarse Red Convergence Adjustments.
- COARSE BLUE ... used to make Coarse Blue Convergence Adjustments.
- DF ... used to preset data values controlling the Dynamic Beam Focus circuit drive signal.

1. Use AUDIO button to select a Sub Function
2. Use the VIDEO button to select an Adjustment Item.
3. Use the ADJUST buttons to change data.

F. FINE CONV (Press 4)

Sub Functions

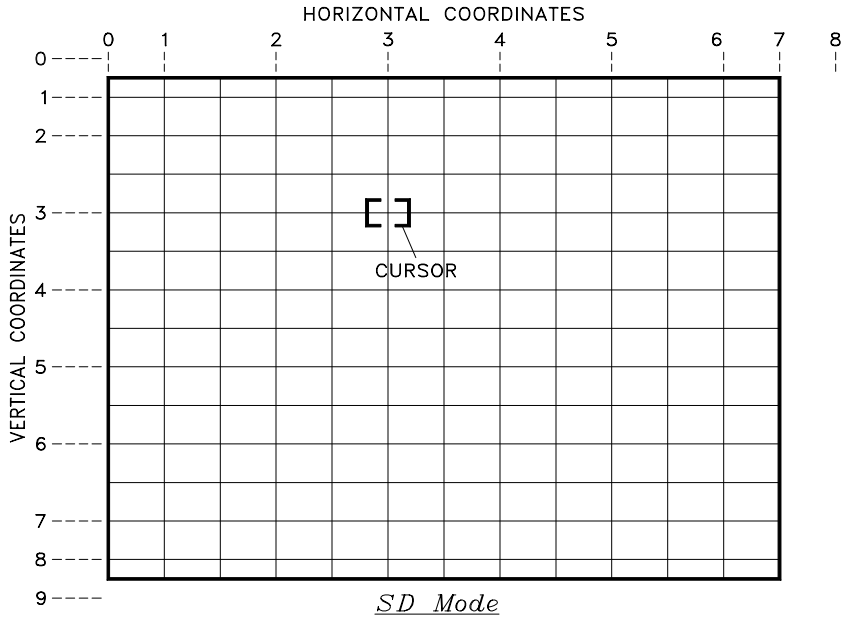
This mode is used to perform Fine Raster Correction, and Fine Red and Blue Convergence Adjustments. There are three Sub Adjustment Functions, selected with the AUDIO button:

- FINE GREEN .... a Green Crosshatch is displayed, to make Fine Raster Corrections.
- FINE RED .... a White Crosshatch is displayed, to make Fine Red Convergence Adjustments.
- FINE BLUE .... a White Crosshatch is displayed, to make Fine Blue Convergence Adjustments.

Cursor

In the Fine mode a Cursor is added to the Crosshatch. The ENTER button toggles the Cursor between two modes:

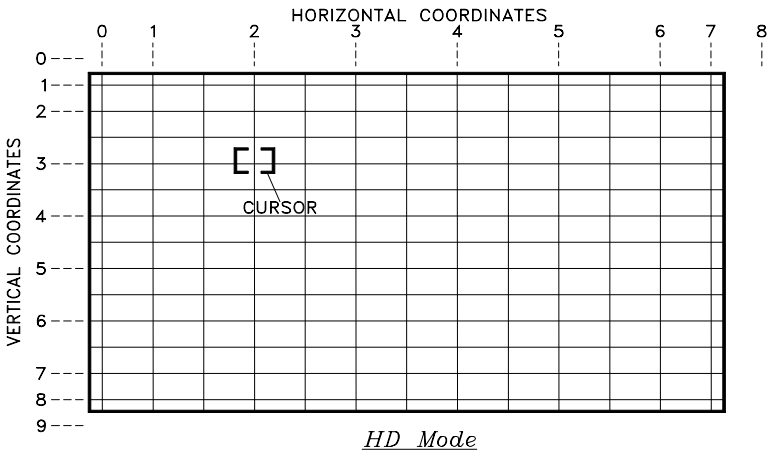
- MOVE (blinking Cursor) .... use the ADJUST buttons to select any of 64 points on the Crosshatch.
- ADJUST (Non blinking Cursor) .... the ADJUST buttons adjust the active color at the current Cursor position, horizontally or vertically.



SD Mode

Cursor Coordinates

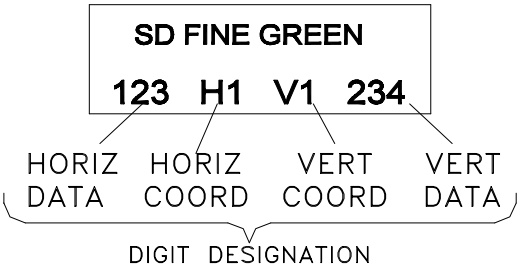
Specific intersections in the Cross-hatch are assigned vertical and horizontal coordinates. These are shown in the adjacent diagram. The Cursor can only be moved to those positions that have coordinates assigned. If the Cursor is at coordinates outside the screen area, the Cursor will not be visible. Use the ADJUST buttons to move the Cursor to an intersection on the screen.



HD Mode

Display

The on-screen display changes in the Fine mode, as shown at the right. The display shows the vertical and horizontal data for the current Cursor Position, and the horizontal and vertical coordinates for that position.



G. Saving Data and Exiting the Convergence Mode

Press MENU twice to exit the Convergence mode, data is automatically saved.

E2PROM Replacement

IC7C01 and IC7C02 stores the adjustment data. After replacing the IC, set the data to the values given in the following tables. If good performance is not obtained, perform the Adjustments Procedures given in the Notes column.

List of Adjustment Items.

VIDEO / CHROMA Function

IC2V00

Function Display		Adjustment	Data	Initial Data			Notes
Item #	Abbrev.	Description	Range	NTSC	HD	480P	
1	SCT	Picture Gain Control	0~63	42	42	42	Sub Contrast
2	SBRT	Sub Brightness	0~63	18	18	18	Black Level
3	SCOL	Sub Color	0~15	3	2	2	Preset
4	STIN	Sub Tint	0~15	6	7	7	"
5	SCON	Sub Contrast	0~15	2	2	2	"
6	RDRH	R-Drive (high)	0~63	42	42	42	White Balance
7	GDR	G-Drive	0~63	50	50	50	Preset
8	BDRH	B-Drive (high)	0~63	42	42	42	White Balance
9	CTRH	R-Cutoff (high)	0~63	15	15	15	"
10	CTGH	G-Cutoff (high)	0~63	50	50	50	Preset
11	CTBH	B-Cutoff (high)	0~63	15	15	15	White Balance
12	RDRL	R-Drive (low)	0~63	50	50	50	"
13	BDRL	B-Drive (low)	0~63	25	25	25	"
14	CTRL	R-Cutoff (low)	0~63	23	23	23	"
15	CTGL	G-Cutoff (low)	0~63	50	50	50	"
16	CTBL	B-Cutoff (low)	0~63	10	10	10	"
17	GMMA	Gamma control	0~15	8	4	5	Preset
18	BRT	Brightness control	0~63	31	31	31	User
19	COL	Color Gain control	0~63	31	31	31	User
21	CONT	Picture Gain control	0~63	42	42	42	Preset
52	VM	VM level	0~3	2	2	2	"
56	CRO1	CR Offset 1	0~15	9	9	9	Cb Cr Offset
57	CBO1	CB Offset 1	0~15	10	10	10	Cb Cr Offset
68	AG1	White Aging On/Off	0~1	0	0	0	Preset

DEFL JUNGLE Function

IC4A01

Function Display		Adjustment	Data	46" Data		55" Data		65" Data		Notes
Item #	Abbrev.	Description	Range	HD	NTSC	HD	NTSC	HD	NTSC	
1	HWID	Horizontal Width	0~63	35	36	27	39	38	39	Width
2	HKEY	Horizontal Keystone	0~63	31	31	31	31	31	31	Preset
3	EWPT	EW-PCC on top	0~63	25	26	26	31	26	27	"
5	EWPB	EW-PCC on bottom	0~63	25	26	26	20	26	27	"
7	VHGT	Vertical Height	0~63	36	46	40	46	35	47	Height
8	VLIN	Vertical Linearity	0~15	12	12	8	9	12	12	Preset
9	VSCN	Vertical S-Correction	0~15	0	0	0	0	0	0	"
20	VPOS	Vertical Position	0~63	31	0	36	36	31	0	"

MAIN MATRIX Function

IC6M00

Function Display		Adjustment	Data	Initial	Notes
Item #	Abbrev.	Description	Range	Data	
1	TNTM	Main Tint	0~63	29	Preset
2	COLM	Main Color	0~63	19	"
3	YDRM	Main Gain Control	0~31	12	Main Y Level

SUB MATRIX Function

IC6P00

Function Display		Adjustment	Data	Initial	Notes
Item #	Abbrev.	Description	Range	Data	
1	TNTS	Sub Tint	0~63	30	Sub Picture Tint
2	COLS	Sub Color	0~63	30	Sub Color
3	YDRS	Sub Gain Control	0~31	12	Sub Y Level
4	VPDS	Sub-V Pedestal DC Control	0~15	7	Preset
5	UPDS	Sub-U Pedestal DC Control	0~15	7	"

AUDIO Function

IC3A01

Function Display		Adjustment	Data	Initial	Notes
Item #	Abbrev.	Description	Range	Data	
1	INP	Input Level Alignment	0~15	8	Input Level
3	WDE	Wideband Separator Align.	0~31	3	Separation
4	SPC	Spectral Separator Align.	0~31	3	"

IRIS Function

Function Display		Adjustment	Data	Initial	Notes
Item #	Abbrev.	Description	Range	Data	
1	0T1	Lower thresh hold voltage setting	0-255	100	Preset

HR Function

Item Number	Abbrev. Name	Description	Data
1	HR	Display horiz. Centering (NTSC)	128
2	HRHD	Display horiz. Centering (HD)	128

DYNAMIC FOCUS

MENU-0-1-5-9

Item Number	Abbrev. Name	Description	Data SD&HD
0	DFH	Dynamic Focus Horizontal	235
1	DFV	Dynamic Focus Vertical	100

CONV MISC Items

(MENU-0-1-5-9-6)

Item Number	Abbrev. Name	Description	Data SD	Data HD	Notes
0	HVOL	High Voltage Control	128		HV Adj.
1	VSTR	Vertical Correction Signal Start Point	0	0	Preset
2	VCNT	Vert. Correction Increment per Line	29	29	"
3	STLN	Horiz. Correction Start Line Number	59	85	"
4	FPHS	Fine H-Phase of Correction Signal	200	200	"
5	CPHS	Coarse H-Phase of Correction Signal	15	15	"
6	DPHS	Dynamic Focus H-Phase	245	245	"
7	TPHS	Test Pattern H-Phase	70	71	"
8	HDLY	HBLK Delay	235	240	"
9	PLWD	HBLK Pulse Width	31	31	"

* Do not change "0 HVOL" if it has been previously set.

CONV GREEN Items

(MENU-0-1-5-9-5)

Item Number	Abbrev. Name	Description	46" Data SD	46" Data HD	55" Data SD	55" Data HD	65" Data SD	65" Data HD	Notes
0	HSTA*	Horizontal Position	0	0	0	0	0	0	Centering
1	SPCC	Side Pincushion Correction	0	0	0	0	0	0	Geo. (Conv)
2	HWID	Width	0	0	0	0	0	0	Geo. (Conv)
3	SKEW	Skew (Y axis rotation)	0	0	0	0	0	0	Geo. (Conv)
4	VSTA*	Vertical Position	-43	0	-18	20	-45	0	Centering
5	VKEY	Vertical Keystone Correction	-15	-15	-30	-30	-25	-25	Geo. (Conv)
6	TBPC	Top/Bottom Pincushion Correction	-250	-200	-290	-260	-310	-250	Geo. (Conv)
7	TILT	Horizontal Tilt (X axis rotation)	0	0	0	0	0	0	Geo. (Conv)

***HSTA and VSTA must not exceed ±200**

CONV RED Items

(MENU-0-1-5-9-5)

Item Number	Abbrev. Name	Description	46" Data SD	46" Data HD	55" Data SD	55" Data HD	65" Data SD	65" Data HD	Notes
0	HSTA*	Horizontal Position	40	40	40	40	0	0	Static Conv.
1	HLIN	Horiz. Linearity	-250	-230	-220	-220	-230	-200	Coarse Conv.
2	SKEW	Skew (Y axis rotation)	0	0	0	0	0	0	Coarse Conv.
3	HWID	Width	-80	-80	-10	-30	-20	-20	Coarse Conv.
4	HSBW	Horiz. Side Bow Correction	50	50	40	40	40	40	Coarse Conv.
5	VST*	Vertical Position	0	0	0	0	0	0	Static Conv.
6	VKEY	Vertical Keystone Correction	-150	-135	-140	-150	-120	-110	Coarse Conv.
7	TILT	Horizontal Tilt (X axis rotation)	0	0	0	0	0	0	Coarse Conv.

***HSTA and VSTA must not exceed ±200**

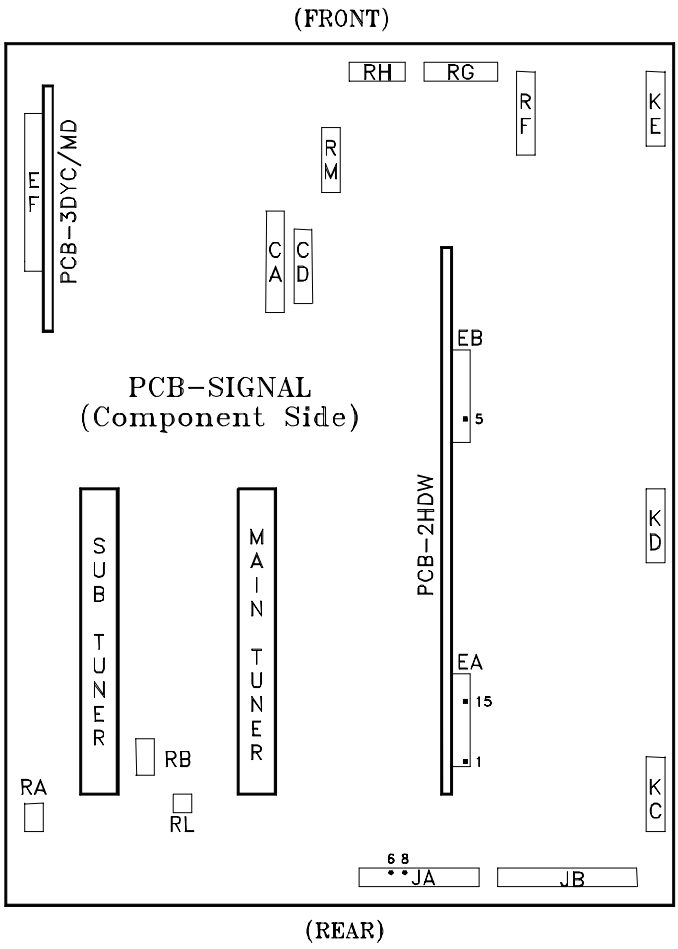
CONV BLUE Items

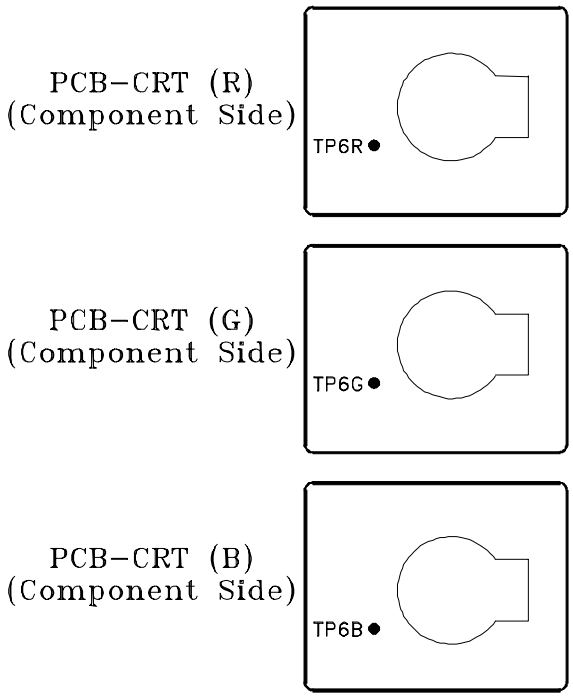
(MENU-0-1-5-9-5)

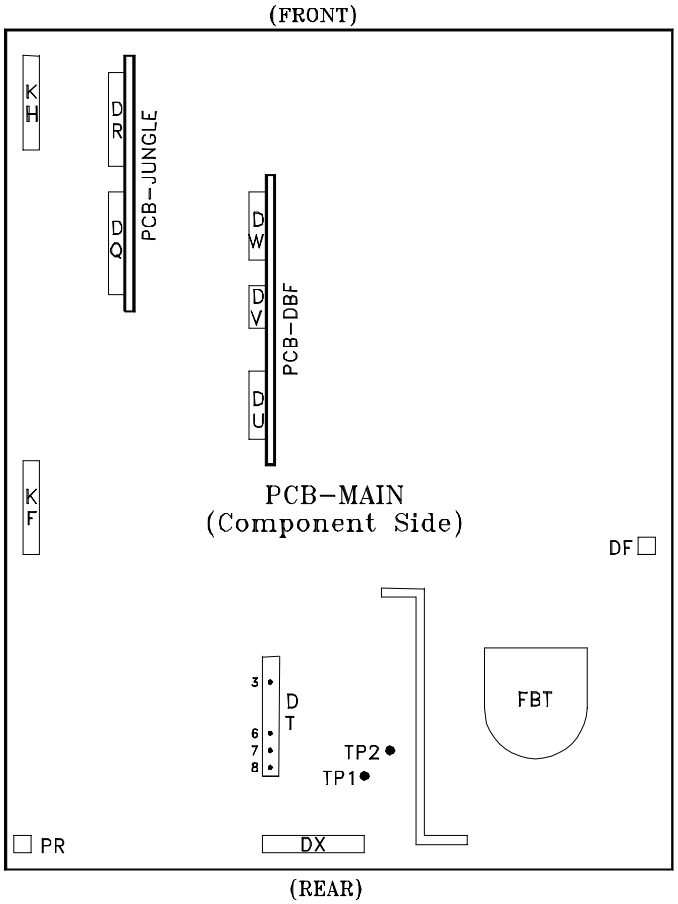
Item Number	Abbrev. Name	Description	46" Data SD	46" Data HD	55" Data SD	55" Data HD	65" Data SD	65" Data HD	Notes
0	HSTA*	Horizontal Position	-40	-40	-40	-40	0	0	Static Conv.
1	HLIN	Horiz. Linearity	250	220	270	250	230	200	Coarse Conv.
2	SKEW	Skew (Y axis rotation)	0	0	0	0	0	0	Coarse Conv.
3	HWID	Width	-20	-20	10	10	0	0	Coarse Conv.
4	HSBW	Horiz. Side Bow Correction	-50	-50	-40	-40	-40	-40	Coarse Conv.
5	VST*	Vertical Position	0	0	0	0	0	0	Static Conv.
6	VKEY	Vertical Keystone Correction	150	135	140	150	120	110	Coarse Conv.
7	TILT	Horizontal Tilt (X axis rotation)	0	0	0	0/0	0	0	Coarse Conv.

***HSTA and VSTA must not exceed ±200**

Adjustments Test Point Locations







Test Points

DT pins 3 & 6 ... HV Regulation Adjustment
DT pins 7 & 8 .... Sub Contrast
JA pins 6 & 8 ... Audio Adjustments
EA pin 1 & 15 ... Main & Sub Y Level
EB pin 5 ..... Side by Side Sub Color
TP6R ..... Red CRT Cutoff
TP6G ..... Green CRT Cutoff
TP6B ..... Blue CRT Cutoff

[Audio Circuit]

1. MCS Input Level

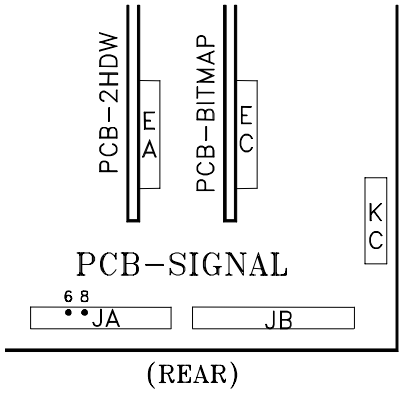
Purpose: Check the input signal level to the MCS circuit

Symptom: Distorted sound during a stereo broadcast.

Measuring Instrument	Oscilloscope
Test Point	Connector JA pins 6 & 8
Ext. Trigger	------
Measuring Range	50mV/Div
Input Signal	RF Stereo 300 Hz modulation
Input Terminal	RF Input

1. Supply an RF MCS signal to the Ant A input, 300 Hz at 100% modulation (25 kHz deviation) for right and left channels.
2. Connect the oscilloscope to connector JA pin 8 (Main Tuner Right Audio).
3. Enter the Adjustment Mode and select the Audio Function.
4. Verify that the Audio Function items are set to the data values given the table below.
5. Set the data for Item "1 INP" for 1.56 Vp-p ±0.06V.
6. Connect the oscilloscope to connector JA pin 6 (Main Tuner Left Audio).
7. Confirm that the left audio level at pin 6 of the JA connector is 1.56 Vp-p ±0.06V.

Note: *Adjustment 2 (Stereo Separation) must be performed after this adjustment)*



CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

AUDIO Function

Item #	Abbrev.	Data
1	INP	7
3	WDE	16
4	SPC	16

[Audio Circuit]

2. Separation

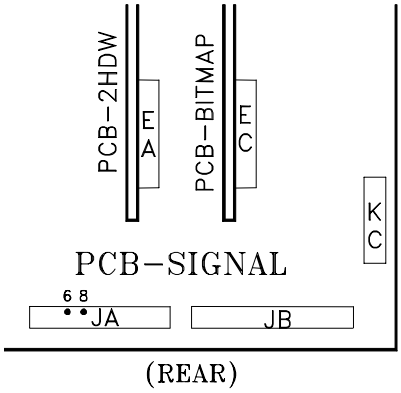
Purpose Check stereo separation

Symptom: Poor stereo separation

Measuring Instrument	Oscilloscope
Test Point	Conector JA pin 8
Ext. Trigger	------
Measuring Range	10mV/Div
Input Signal	RF Stereo
Input Terminal	RF Input

Note: *This adjustment must follow Adjustment 1 (Input Level)*

1. Supply a RF Stereo Signal (dual tone stereo) to the Ant. A input.
   - Left Channel = 300 Hz modulation
   - Right Channel = no modulation
2. Connect the oscilloscope to connector JA pin 8 (Main Tuner Right Audio).
3. Enter the Adjustment Mode and select the Audio Function.
4. Set the data for Item "3 WDE" for minimum Right Audio signal.
5. Change the modulation frequency to 3kHz.
6. Adjust the data for Item "4 SPC" for minimum Right Audio signal.



CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[HV Circuit]

3. HV Regulation

Purpose: To set the CRT Anode voltage.

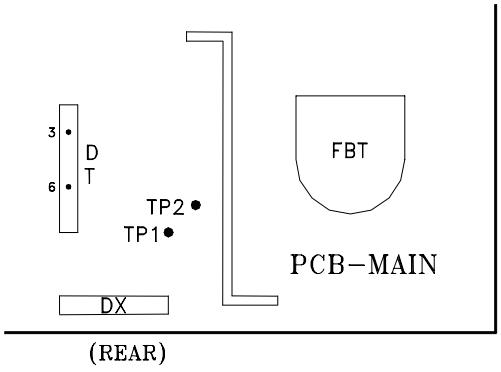
Symptom: Dark Picture

Measuring Instrument	DC Voltmeter
Test Point	DT connector pins 3 & 6
Ext. Trigger	------
Measuring Range	-------
Input Signal	Video Signal Monoscope
Input Terminal	Video Input

Note: *This adjustment must be rechecked following Adjustment 9 CRT Cutoff.*

1. Supply a video monoscope signal.
2. Sent Contrast to maximum, and Brightness to mid position.
3. Connect a DC volt meter between pins 3 and 6 of the DT connector. (Positive lead to pin 3)
4. Activate the Conv-Misc Mode.
5. Select Item “0 HVOL” (screen goes black).
6. Adjust Item “0 HVOL” for 15.4V ±0.1V on the meter.
7. Save data and exit the Conv-Misc mode.
8. Confirm that the voltage does not change more than 0.15V.

Note: *This adjustment must be performed if E2RESET or Convergence E2RESET are activated.*



CONVERGENCE MODE

Activate ……..MENU-0-1-5-9
Misc. ……..……"6"
Coarse……..……"5"
Fine ……..."4"
Color (R,G or B)……AUDIO
Item No……..…..VIDEO
Adjust/Move…….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

[Video Circuit]

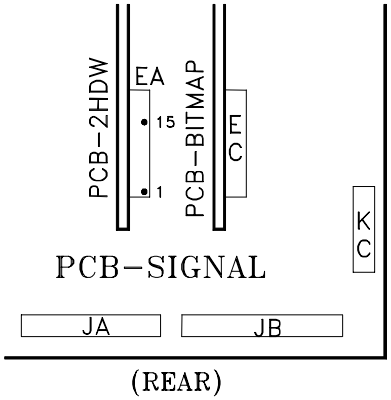
4. Main/Sub Y Level

Purpose To set picture luminance

Symptom: Excess or insufficient brightness.

Measuring Instrument	Oscilloscope
Test Point	EA connector pins 15 & 1
Ext. Trigger	------
Measuring Range	------
Input Signal	Color Bars
Input Terminal	Video Input

1. Supply a color bar signal to a Video Input (not an RF input).
2. Select the color bar signal for both the main and sub pictures.
3. Connect the oscilloscope to connector EA pin 15.
4. Activate the Adjustment Mode
5. Select Item “3 YDRM” in the Main Matrix function.
6. Adjust the data for 0.7 Vp-p max. - 0.67 Vp-p min. at EA pin 15. (If it cannot be adjusted within this range, set to the lower value)
7. Move the oscilloscope to EA pin 1.
8. Select Item “3 YDRS” in the Sub Matrix function.
9. Adjust the data for 0.7 Vp-p max. - 0.67 Vp-p min. at EA pin 1. (If it cannot be adjusted within this range, set to the lower value)



CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..……..AUDIO
Item No. ……..……VIDEO
Adjust Data ……..ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[Video Circuit]

5. Side by Side Sub Picture Tint

Purpose: To match the sub picture color to that of the main picture.

Symptom: Main and sub pictures colors differ.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	NTSC
Input Terminal	RF or Video

1. Supply an NTSC signal.
2. Select the NTSC signal as the source for both the main and sub pictures.
3. Activate Side by Side POP
3. Activate the Adjustment mode.
4. Select Item “1 TNTS” in the Sub Matrix Function.
5. Adjust data to match the sub picture color to that of the main picture. (If “1 TNTS” range is short, adjust Items “4 VPDS” and “5 UPDS”)

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[Video Circuit]

6. Side by Side Sub Color

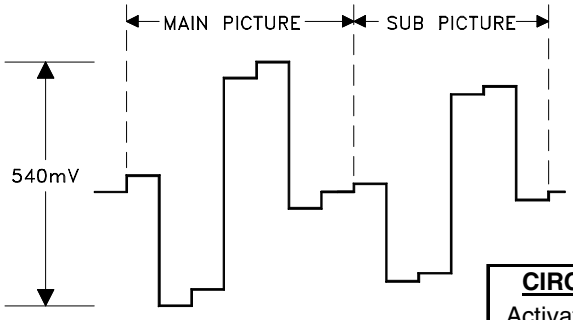
Purpose To set the sub picture color level.

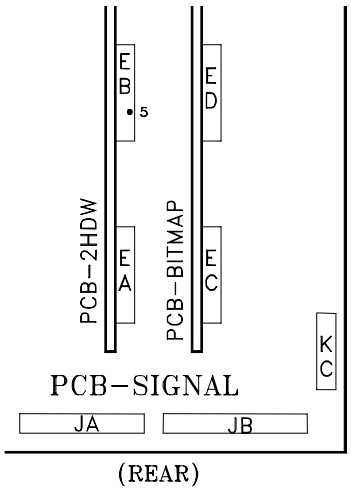
Symptom: Main and sub pictures color levels differs.

Measuring Instrument	Oscilloscope
Test Point	EB connector pin 5
Ext. Trigger	------
Measuring Range	200mV/div 20usec/div
Input Signal	Color Bars
Input Terminal	Video Input

Note: *Let the set run for at least one minute before making this adjustment.*

1. Supply a color bar signal.
2. Select the color bar signal as the source for both the main and sub picture.
3. Connect an oscilloscope to pin 5 of the EB connector.
4. Activate the Side by Side mode.
5. Activate the Service Mode
6. Select Item “2 COLS” in the Sub Matrix function.
7. Adjust data so the amplitude of the Sub signal equals that of the main signal.





CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[CRT Circuit]

7. CRT Cutoff

Purpose: To set the cutoff point for all three CRTs.

Symptom: Monochrome has a color tint, or incorrect brightness.

Measuring Instrument	Oscilloscope
Test Point	TP6R, TP6G, TP6B
Ext. Trigger	------
Measuring Range	50V/Div. 2msec/Div.
Input Signal	None
Input Terminal	Video Input

Note: ***Use the Expand mode (full screen)***

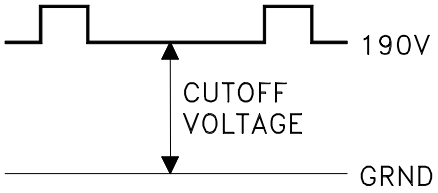
(Refer to page 29 for Test Point locations.)

1. Select an External Input with no signal.
2. Enter the Adjustment Mode, Video/Chroma Function.
3. Set the data to the values given in the table below.
4. Connect the oscilloscope to TP6R.
5. Adjust the Red Screen VR so the black level is 190V, as shown below, or 199V ±1VDC using an DC Voltmeter.
6. Repeat Steps 4 and 5 to set the Blue and Green Screen VRs, using TP6G and TP6B.

Note: *White Balance must be performed after this adjustment.*

VIDEO / CHROMA Function

Item #	Abbrev.	Data
1	SCT	42
2	SBRT	18
5	SCON	2
6	RDRH	42
7	GDR	50
8	BDRH	42
9	CTRH	15
10	CTGH	50
11	CTBH	15
18	BRT	31
19	COL	0



CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[CRT Circuit]

8. White Balance (NTSC)

Purpose To set the CRTs white level in the NTSC mode.

Symptom: Monochrome has a color tint.

Measuring Instrument	DC Voltmeter
Test Point	------
Ext. Trigger	------
Measuring Range	------
Input Signal	NTSC White Raster
Input Terminal	RF or Video

Note: ***Use the Expand mode (full screen)***

1. Supply a full White Raster Signal
2. Activate the Service Mode, Video/Chroma function.
3. Set the data for Item “19 COL” to 0.
4. Adjust Items “6 RDRH” and “8 BDRH” for optimum white at the center of the screen.
5. Reduce the input luminance level to 25%.
6. Adjust Items “9 CTRH” and “11 CTBH” for optimum white.
7. Insert a Milliammeter in series with each CRT Cathode. The maximum allowable current for each CRT is given in the table below.
8. Set the white raster to 100% and adjust Items “12 RDRL” and “13 BDRL” for optimum white at the center of the screen.
9. Reduce the luminance level to 25%.
10. Adjust Item “14 CTRL” and “16 CTBL” for optimum white.
11. Set the data for Item “19 COL” back to 28.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

Maximum CRT Current

CRT	CURRENT
RED	580 uA
GREEN	580 uA
BLUE	580 uA

[CRT Circuit]

9. White Balance (HD)

Purpose: To set the CRTs white level in the HD mode.

Symptom: Monchrome pictures have a color tint.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	HD White Raster
Input Terminal	DTV Inputs

1. Supply an HD Full White Raster signal to the DTV Inputs.
2. Select the DTV Inputs (Input button)
3. Activate the Adjustment mode, Video/Chroma Function.
4. Set Item “19 COL” to 0.
5. Adjust Items “6 RDRH” and “8 BDRH” for optimum white at the center of the screen.
6. Reduce the input signal luminance to 25%.
7. Adjust Items “9 CTRH” and “11 CTBH” for optimum white.
8. Set the data for Item “19 COL” back to 31.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..……..AUDIO
Item No. ……..……VIDEO
Adjust Data ……..ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[CRT Circuit]

10. Cb, Cr Offset

Purpose To set Cb and Cr color signal level.

Symptom: Incorrect colors.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	White Raster (HD&NTSC)
Input Terminal	Video & DTV Inputs

NTSC Mode

1. Supply an NTSC White Raster (25% luminance) signal to a Video Input.
2. Activate the Adjust Mode, Video/Chroma Function
3. Set Item “19 COL” data to 63.
4. Adjust Items “56 CRO1” and “57 CBO1” for optimum white.
5. Set Item “19 COL” data to 31.
6. Save data and Exit the Service Mode.

HD MODE

1. Supply an HD White Raster (25% luminance) signal to a Video Input.
2. Activate the Adjust Mode, Video/Chroma Function
3. Set Item “19 COL” data to 63.
4. Adjust Items “56 CRO1” and “57 CBO1” for optimum white.
5. Set Item “19 COL” data to 31.
6. Save data and Exit the Service Mode.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..……..AUDIO
Item No. ……..……VIDEO
Adjust Data ……..ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

[Video Circuit]

11. Black Level

Purpose: To set the black level of the picture.

Symptom: Excess or insufficient brightness.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	Monoscope
Input Terminal	Video Input

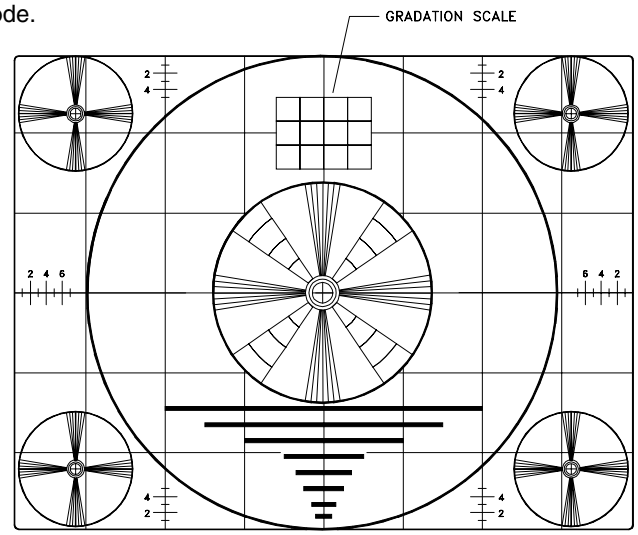
1. Supply a Monoscope signal to a Video Input.
2. Activate the Adjust Mode, Video/Chroma Function.
3. Adjust Item "2 SBRT" so the 0% and 10% black levels on the gradation scale are the same. Make note of the data value.
4. Press ENTER to save data.
5. Use the "3" button to toggle to the HD and 480P modes.
6. Set the data for "2 SBRT" in both modes to the NTSC data value (Step 3).
   NOTE: Press ENTER to save data before switching modes.
7. Exit the Service Mode.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

40%	30%	20%	10%
50%	0%	0%	0%
60%	70%	80%	90%

GRADATION SCALE



[Video Circuit]

12. Sub Contrast

Purpose To set overall beam current to its' optimum level.

Symptom: Excess or insufficient contrast.

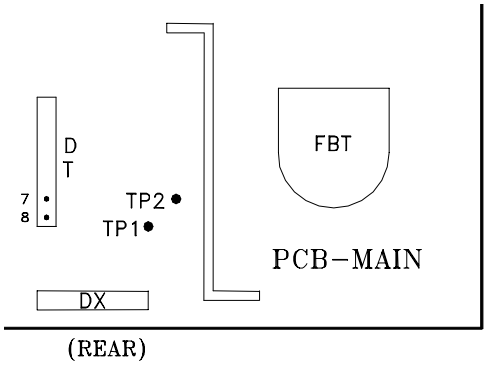
Measuring Instrument	DC ma meter
Test Point	DT connector pins 7 & 8
Ext. Trigger	------
Measuring Range	-----
Input Signal	Grayscale
Input Terminal	RF Input

Note: Activate the Expand mode (full screen).

1. Supply a Grayscale signal to a RF Input.
2. Activate the Adjust Mode, Video/Chroma Function.
3. Select Item "1 SCT", signal level automatically reduces.
4. Connect a 3ma DC meter between DT connector pins 7 and 8. Positive lead to pin 7.
5. Adjust Item "1 SCT" for 600µA ±10µA (575µa ±10µa on the WT-46809). Note the data value.
6. Press Enter to save data.
7. Remove the meter.
8. Use the "3" button to toggle to the HD and 480P modes.
9. Set the data for "1 SCT" in both modes to the NTSC data value (Step 5).
   NOTE: Press ENTER to save data before switching modes.
10. Save data and Exit the Service Mode.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)



[Focus Circuit]

13. Dynamic Focus Preset

Purpose: To improve edge focus.

Symptom: Poor focus at the edges of the screen.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	Monoscope
Input Terminal	Video Input

1. Supply a Monoscope signal to a Video Input
2. Activate the Convergence Mode.
3. Select the DF Function under the Conv. Coarse Mode.
4. Set Items “0 DFH” and “1 DFV” to the data values given in the DF Table.
5. Press “6” to activate CONV-MISC
6. Set “0 FPHS” and “1 DPHS” to data values given in the CONV-MISC Table.
5. Exit the Conv. Mode.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

DF (MENU-0-1-5-9 then "AUDIO"

ITEM	ABBR.	DATA
0	DFH	235
1	DFV	100

CONV MISC (MENU-0-1-5-9-6)

ITEM	ABBR.	DATA
0	FPHS	200
1	DPHS	245

[CRT Circuit]

14. Electrostatic Focus & (Alignment Magnet)

Purpose To set electrostatic focus to the optimum point.

Symptom: Poor focus.

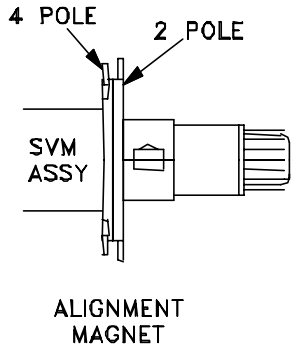
Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	Monscope & Crosshatch
Input Terminal	Video Input

Note: *This adjustment must be performed after the Sub Contrast adjustment.*

Alignment Magnet Adjustment (WS-55819 and WS-65819 Only)

This adjustment must be performed before Static Focus Adjustment

1. Supply a Crosshatch with Center Dot signal to a Video Input.
2. Select a Green raster using the table below.
3. Roughly adjust Green Focus VR.
4. Rotate Green Focus VR CCW so the center dot is about 10mm diameter.
5. Adjust the Green 4 Pole Magnet for the roundest center dot.
6. Set the Green Focus VR for optimum focus.
7. Repeat the procedure with a Red raster and adjust the Red 4 Pole Magnet.
8. Use silicon to lock the magnets in place.



Static Focus Adjustment (All Models)

1. Supply a Monoscope signal to a Video Input
2. Activate A/V Reset
3. Select Red, Green or Blue rasters using the table below.
3. Set the Red, Green and Blue Focus VRs for optimum focus at the top center of the picture..

Raster Color Selection

Color Raster	Activation Code
Red	MENU-0-1-5-9-1
Green	MENU-0-1-5-9-2
Blue	MENU-0-1-5-9-3

[Video Circuit]

15. Lens Focus

Purpose: To set the Lens position for optimum focus.

Symptom: Poor focus

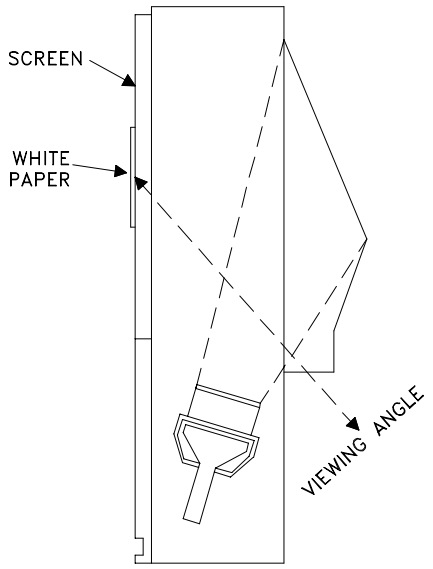
Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	Monoscope
Input Terminal	Video Input

Note: *This adjustment must follow item 6 (Electrostatic Focus). Perform this adjustment for RED, GREEN, and BLUE monochrome pictures.*

1. Supply a VIDEO signal (Monoscope).
2. Cover the Red and Blue Lens (producing a green raster).
3. Adjust the Green Lens for best focus at the center of the Monoscope pattern.

Note: *Attach a white paper to the screen center. During adjustment, observe the picture on the screen from inside for easier adjustment.*

4. Repeat Steps 2 and 3 for the Red and Blue monochrome pictures.



[On Screen Display]

16.Character Position

Purpose To position the character display horizontally.

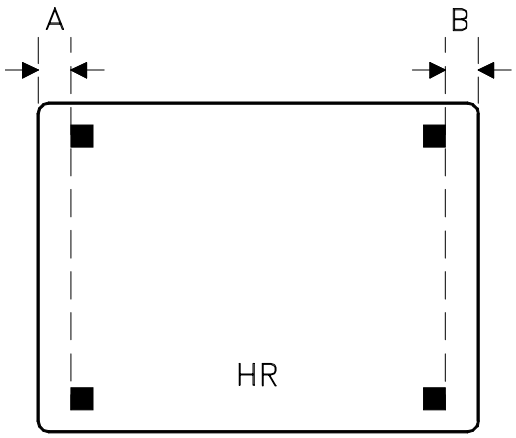
Symptom: Incorrect display position

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	Video Signal
Input Terminal	Video Input

1. Supply a video signal to a Video Input
2. Enter the Adjustment Mode HR function.
3. Adjust so the width of (A) and (B) are equal as shown below.
3. Save data and exit the Service Mode.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……..VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)



[Conv/Defl]

18. Geometry Preset

Purpose: To preset data controlling raster geometry

Symptom: Raster distortion.

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC & HD
Input Terminal	Video & DTV Inputs

Note: *This procedure is usually only necessary if:*
- *An E2PROM is replaced in the Control or Convergence circuits.*
- *E2RESET or Convergence Reset has been activated.*

Procedure

In the Circuit Adjustment and Coarse Convergence Modes set the data to the values given in the Tables below.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function ……..AUDIO
Item No. ……VIDEO
Adjust Data ……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

CONVERGENCE MODE

Activate ……..MENU-0-1-5-9
Misc. ……"6"
Coarse……"5"
Fine ……."4"
Color (R,G or B)……AUDIO
Item No……..VIDEO
Adjust/Move…….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

CONV. HD WITH NO SIGNAL

1. MENU-0-1-7-0
2. Set DTV Port to 1080i
3. MENU (twice)
4. INPUT select DTV Inputs
5. MENU-0-1-5-9

After adjusting, set the DTV Port to AUTO

DEFL JUNGLE (MENU-8-2-5-7)

Item #	Abbrev.	Data	
		NTSC	HD
1	HWID	29	33
2	HKEY	31	40
3	EWPT	31	31
5	EWPB	39	40
7	VHGT	38	24
8	VLIN	9	9
9	VSCN	0	0
20	VPOS	0	31

CONV GREEN (MENU-0-1-5-9)

Item #	Abbrev.	46" Data		55" Data		65" Data	
		SD	HD	SD	HD	SD	HD
0	HSTA	0	0	0	0	0	0
1	SPCC	0	0	0	0	0	0
2	HWID	0	0	0	0	0	0
3	SKEW	0	0	0	0	0	0
4	VSTA	-43	0	-45	0	-45	0
5	VKEY	-15	-15	-30	-30	-25	-25
6	TBPC	-250	-200	-310	-260	-310	-250
7	TILT	0	0	0	0	0	0

CONV RED (MENU-0-1-5-9)

Item #	Abbrev.	46" Data		55" Data		65" Data	
		SD	HD	SD	HD	SD	HD
0	HSTA	40	40	40	40	0	0
1	HLIN	-250	-230	-250	-230	-230	-200
2	SKEW	0	0	0	0	0	0
3	HWID	-80	-80	-50	-50	-20	-20
4	HSBW	50	50	40	40	40	40
5	VSTA	0	0	0	0	0	0
6	VKEY	-150	-135	-140	-125	-120	-110
7	TILT	0	0	0	0	0	0

CONV BLUE (MENU-0-1-5-9)

Item #	Abbrev.	46" Data		55" Data		65" Data	
		SD	HD	SD	HD	SD	HD
0	HSTA	-40	220	-40	-40	0	0
1	HLIN	250	0	250	230	230	200
2	SKEW	0	-20	0	0	0	0
3	HWID	-20	-50	0	0	0	0
4	HSBW	-50	0	-40	-40	-40	-40
5	VSTA	0	135	0	0	0	0
6	VKEY	150	0	140	125	120	110
7	TILT	0	0/0	0	0	0	0

[Deflection Circuit]

19: Deflection Geometry Height & Width Adjustment

Purpose: To set the height, width and linearity of the raster.

Symptom: Incorrect height, width and/or linearity.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	Monoscope (NTSC & HD)
Input Terminal	Video & DTV Inputs

CIRCUIT ADJUST MODE

Activate …….. MENU-0-1-5-7
Function …..……..AUDIO
Item No. ……..……VIDEO
Adjust Data ….……ADJUST
Save Data …. ……ENTER
Exit ……..MENU (twice)

Preliminary:

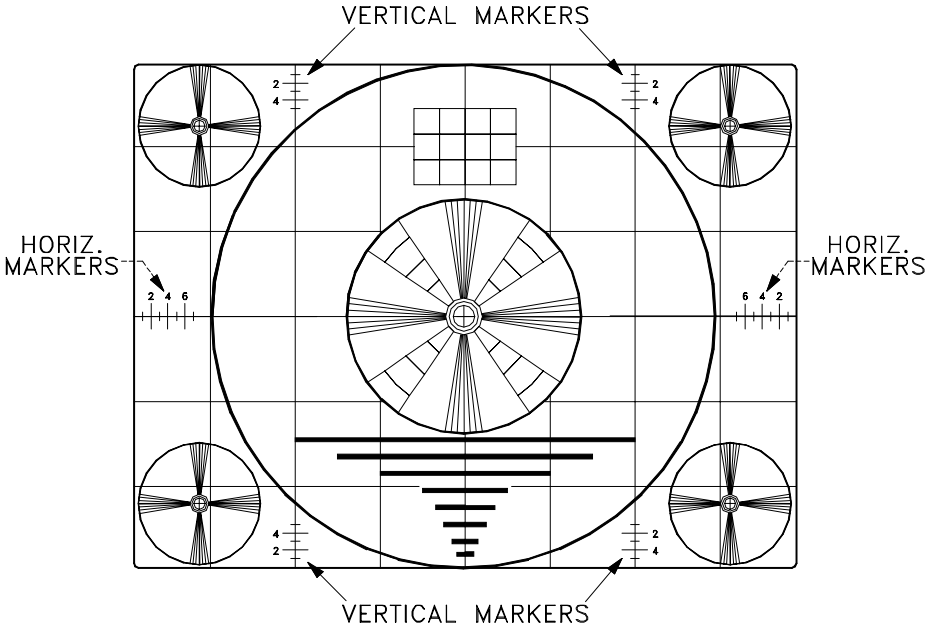
1. DO NOT change the initial values for "#8 VLIN" in the Defl. Jungle Function.
2. DO NOT exceed the following VHGT adjustment ranges:
   NTSC ... from -4 to +10
   HD ... FROM -10 TO +5

NTSC Mode

1. Supply an NTSC Monoscope signal to a Video Input.
2. Select the Monoscope as the signal source (Input button)
3. Activate the Adjustment Mode, Defl. Jungle Function.
4. Select and adjust each of the following items.
   - "7 VHGT" ... so the vertical marker sum = 4
   - "1 HWD" ... so the horizontal marker sum = 7
5. Save data and Exit the Service Mode.

HD Mode

1. Supply an HD Monoscope signal to the DTV HD Inputs.
2. Select the DTV Inputs as the signal source (Input button)
3. Activate the Service Mode, Defl. Jungle Function.
4. Select and adjust each of the following items.
   - "7 VHGT" ... so the vertical marker sum = 2
   - "1 HWD" ... so the horizontal marker sum = 10
5. Save data and Exit the Service Mode.



[Convergence Circuit]

20. Convergence Geometry Adjustment

Purpose: To set the Convergence circuit geometry adjustments.

Symptom: Raster distortion at the top, bottom or sides of the picture.

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- None HD -- HD sync
Input Terminal	Video & DTV Inputs

Note: *Deflection Circuit Geometry must be performed before this adjustment.*

NTSC mode

1. Select a Video Input with no signal.
2. Activate the Convergence Mode, Coarse Green.
3. Adjust the Coarse Green Items shown below for straight crosshatch lines.
4. Select the Fine Green Mode, a Cursor is displayed on the crosshatch.
5. Use the Cursor to adjust for straight crosshatch lines.
6. Exit the Convergence Mode.

HD mode

1. Supply horizontal and vertical HD sync to the DTV Inputs.
   Note: I*f an HD signal is not available, use the Conv. HD With No Signal procedure.*
2. Select the DTV Inputs as the signal source (Input button)
3. Enter the Convergence Mode, Coarse Green.
4. Repeat NTSC Steps 3 through 6 in the HD mode.

CONVERGENCE MODE

Activate ……..MENU-0-1-5-9
Misc. ……"6"
Coarse……..…."5"
Fine ……..."4"
Color (R,G or B)……AUDIO
Item No……..VIDEO
Adjust/Move…….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

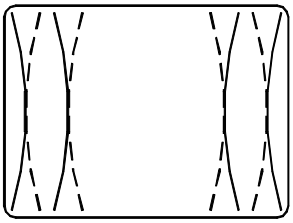
CONV. HD WITH NO SIGNAL

1. MENU-0-1-7-0
2. Set DTV Port to 1080i
3. MENU (twice)
4. INPUT select DTV Inputs
5. MENU-0-1-5-9

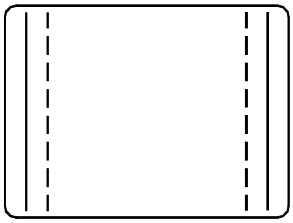
After adjusting, set the DTV Port to AUTO

COARSE GREEN ADJUSTMENTS

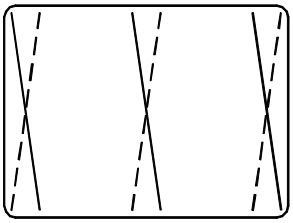
1 SPCC



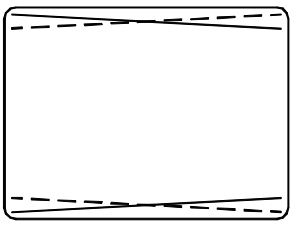
2 HWID



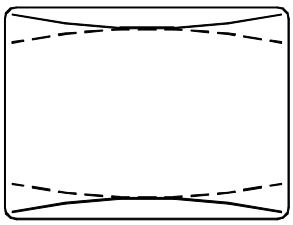
3 SKEW



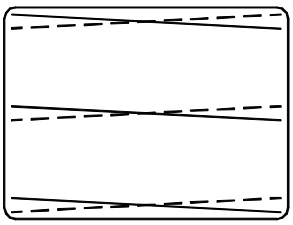
5 VKEY



6 TBPC



7 TILT



[Convergence Circuit]

21. Centering and Static Convergence

Purpose: To converge red, green and blue at the center of the screen

Symptom: Color edging over the entire picture.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- Monoscope HD -- Monoscope
Input Terminal	Video & DTV Inputs

CONVERGENCE MODE

Activate ……..MENU-0-1-5-9
Misc. ……"6"
Coarse……..…."5"
Fine ……..."4"
Color (R,G or B)……AUDIO
Item No……..VIDEO
Adjust/Move…….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

Preliminary

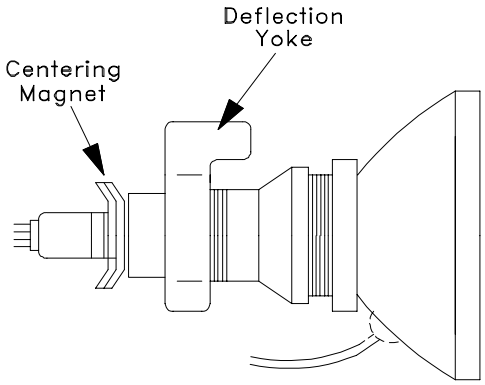
Degauss the shield cover and bracket unit of the CRT assembly and chassis.
DO NOT degauss the CPM Assemblies.

HD mode

1. Supply an HD Monoscope signal to the DTV Inputs.
2. Select the DTV Inputs as the signal source (Input button).
3. Enter the Convergence Coarse mode.
4. Set the data for the “HSTA” and “VSTA” items for red, green and blue to 0.
5. In the Coarse Green mode:
   - Center the Green Raster using the Green Centering Magnet.
   - Rotate the Green Deflection Yoke to correct any tilt.
6. In the Coarse Red mode, use the Red Centering Magnet to converge red on the green at the center of screen. Correct any red tilt with the Red Deflection Yoke.
7. In the Coarse Blue mode, repeat Step 6 using the Blue Centering magnet and the Blue Deflection Yoke.
8. Exit the Convergence mode.

SD mode

1. Supply an NTSC Monoscope signal to a Video Input.
2. Select the Monoscope as the signal source (Input button).
3. Enter the Convergence Coarse mode.
4. In the Coarse Green mode, use Items “0 HSTA” and “4 VSTA” to center the green raster.
5. In the Coarse Red mode, use Items “0 HSTA” and “5 VSTA” to converge red on the green at the center of the screen.
6. In the Coarse Blue mode, repeat step 5 to converge the blue on the green.
7. Exit the Convergence mode.



[Convergence Circuit]

22. Coarse Convergence

Purpose: To converge red and blue on green at the edges of the screen.

Symptom: Color edging at the top, bottom and sides of the screen.

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- None HD -- HD sync
Input Terminal	Video & HD Inputs

SD mode

1. Select an External Input with no signal.
2. Activate the Convergence Mode, Coarse Red.
3. Adjust the Items shown below to converge the red on the green.
4. Select Coarse Blue mode.
5. Adjust the Items shown below to converge the blue on the green.
   Note: *If center convergence shifts, use red and blue Items "0 HSTA" and "5 VSTA" to correct the shift.*
6. Exit the Convergence Mode.

HD mode

1. Supply an HD signal (sync only) to the DTV inputs, and use the "Input" button to select the DTV inputs as the source..
   (If no HD signal is available, use the Conv. HD with No Signal procedure)
2. Repeat SD Steps 2 through 5 in the HD mode.
3. Exit the Convergence mode.

CONVERGENCE MODE

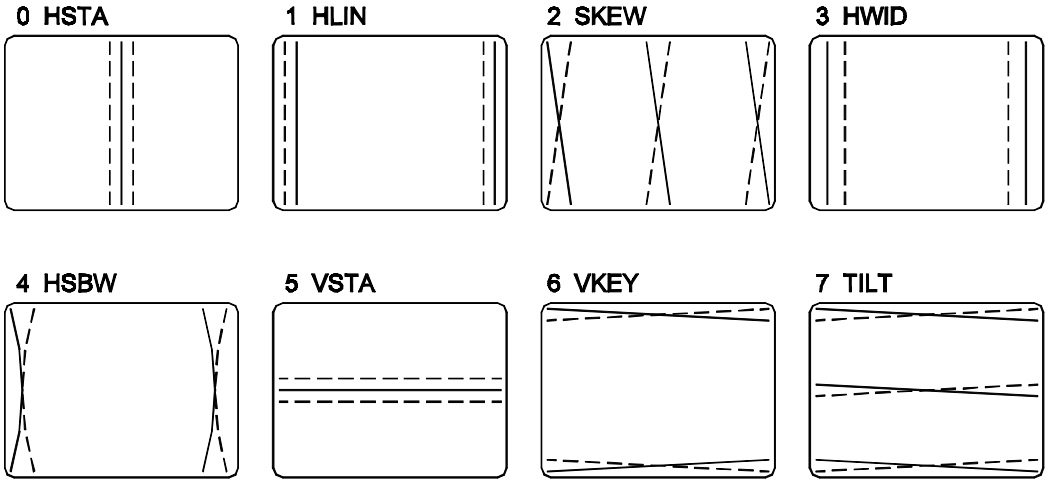
Activate ……..MENU-0-1-5-9
Misc. ……"6"
Coarse……..…."5"
Fine ……..."4"
Color (R,G or B)……AUDIO
Item No……..VIDEO
Adjust/Move…….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

CONV. HD WITH NO SIGNAL

1. MENU-0-1-7-0
2. Set DTV Port to 1080i
3. MENU (twice)
4. INPUT select DTV Inputs
5. MENU-0-1-5-9

After adjusting, set the DTV Port to AUTO

COARSE CONVERGENCE RED & BLUE ADJUSTMENTS



[Convergence Circuit]

23. Fine Convergence

Purpose: To converge red, green and blue at the edges of the screen

Symptom: Color edging at the edges of the picture.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- None HD -- HD sync
Input Terminal	Video & DTV Inputs

SD Fine Adjustment

1. Select an External Input, no signal.
2. Activate the Convergence Mode, Fine Red.
3. Use the Cursor to converge red on the green.
4. Select the Fine Blue mode.
5. Use the Cursor to converge blue on the green.
6. Exit the Convergence mode.

HD Fine Adjustment

1. Supply an HD signal (sync only) to the DTV inputs and select DTV with the "Audio" button.
   (If no HD signal is available, use the Conv. HD No Signal Procedure.)
2. Repeat SD Steps 2 through 7, in the HD mode.

CONVERGENCE MODE

Activate ……..MENU-0-1-5-9
Misc. ……"6"
Coarse……..…."5"
Fine ……..."4"
Color (R,G or B)……AUDIO
Item No……..VIDEO
Adjust/Move…….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

CONV. HD WITH NO SIGNAL

1. MENU-0-1-7-0
2. Set DTV Port to 1080i
3. MENU (twice)
4. INPUT select DTV Inputs
5. MENU-0-1-5-9

After adjusting, set the DTV Port to AUTO

CHIP PARTS REPLACEMENT

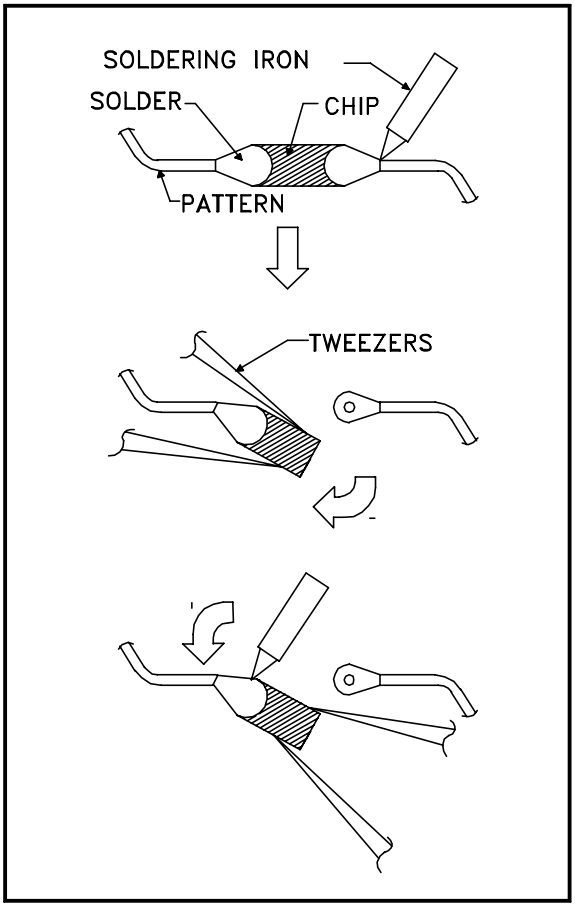
Some resistors, shorting jumpers (0 Ohm resistors), ceramic capacitors, transistors and diodes are chip parts. The following precautions should be taken when replacing these parts.

Cautions:

1. Use a fine tipped, well insulated soldering iron (approximately 30 watts), and tweezers.
2. Melt the solder and remove the chip parts carefully so as not to tear the copper foil from the printed circuit board.
3. Discard removed chips; do not reuse them.
4. Do not apply heat for more than 3 (three) seconds to new chip parts.
5. Avoid using a rubbing stroke when soldering.
6. Take care not to scratch, or damage the chip parts when soldering.
7. Supplementary cementing is not required.

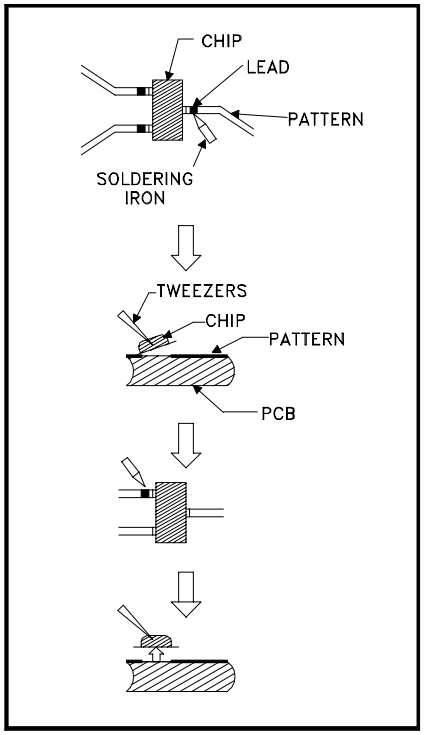
Chip Parts Removal (Resistors, Capacitors, etc.)

1. Grasp the part with tweezers. Melt the solder at both sides alternately, and remove one side of the part with a twisting motion.
2. Melt the solder at the other side and remove the part.



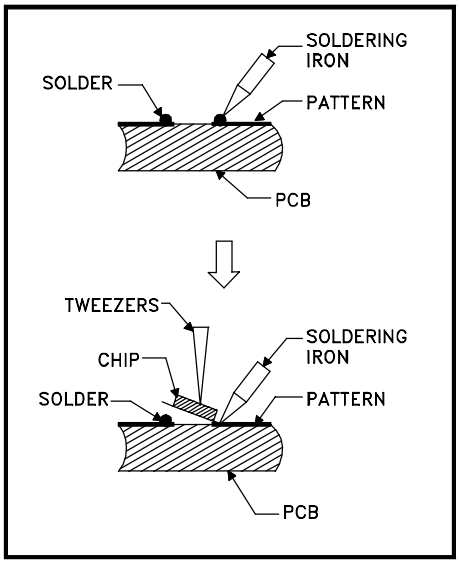
Chip Parts Removal (Transistors)

1. Melt the solder of one lead and lift the side of that lead upward.
2. Simultaneously melt the solder of the other two leads and lift the part from the PCB.



Replacement

1. Presolder the contact points on the circuit pattern.
2. Press the part downward with tweezers and apply the soldering iron as shown.



REPLACEMENT PARTS

Parts Ordering
To expedite delivery of replacement parts orders, specify the following:

1. Model Number/Serial Number
2. Part Number and description
3. Quantity

Note: Unless complete information is supplied, delay in processing of orders will result.

Critical and Warranty Parts Designation

Critical Electrical Components are indicated by **Bold Type** in the Parts List, and in the schematic diagrams by shading.

Warranty Return Parts are indicated in the Parts List with an **(*)**.

Parts Tolerance Codes
Refer to the following chart for tolerance characteristics of electrical components.

MARK	B	C	D	F	G	J	K
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10

MARK	M	N	V	X	Z	P	Q
Tolerance %	± 20	± 30	± 10	+ 40 -20	+ 80 -20	+ 100 - 0	+ 30 -10

MARK	M	N	V	X	Z
Tolerance (pF)	± 0.1	± 0.25	± 0.5	± 1	± 2

QUICK REFERENCE FOR COMMON REPLACEMENT PARTS

CRT ASSEMBLIES

MODEL	ASSY-CRT-RED	ASSY-CRT-GREEN	ASSY-CRT-BLUE
WT-46809	***251C212070**	***251C212080**	***251C212090**
WS-55809	***251C212010**	***251C212020**	***251C212030**
WS-55819	***251C212010**	***251C212020**	***251C212030**
WS-65809	***251C212040**	***251C212050**	***251C212060**
WS-65819	***251C212040**	***251C212050**	***251C212060**

REMOTE CONTROL

	290P103010	REMOTE CONTROL

HIGH VOLTAGE / DEFLECTION COMPONENTS

Q5A31	261P071010	HORIZ-OUT 2SC5418 RL	
Q5A51	**261P082010**	**HV-OUT 2SK2771-O1R**	
T5A51	**334P278010**	**TRANS-FLYBACK**	
	920P016010	**HV-BLOCK**	
	129P059050	VR-FOCUS	
	338P046030	SVM COIL:G&B	WT-46809 / WS-55809 / WS-65809
	338P046080	SVM COIL:RED	WT-46809 / WS-55809 / WS-65809
	338P051010	SVM COIL:G	WS-55819 / WS-65819
	338P051020	SVM COIL:RED	WS-55819 / WS-65819
	330P276020	**DEFL-YOKE**	**WT-46809 / WS-55809 / WS-55819**
	330P276010	**DEFL-YOKE**	**WS-65809 / WS-65819**
	453B035010	**CAP ANODE-RED**	
	453B035020	**CAP ANODE-B&G**	

MISCELLANEOUS

MODEL	MIRROR	LENTICULAR SCREEN	FRESNEL LENS
WT-46809	767D055070	491P118020	491P119020
WS-55809	767D055040	491P125010	491P126010
WS-55819	767D055040	491P125010	491P126010
WS-65809	767D048090	491P105020	491P106020
WS-65819	767D048090	491P105010	491P106010

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
		TUBES	
	251C212010	**ASSY-CRT-RED**	**1&2**
	251C212020	**ASSY-CRT-GREEN**	**1&2**
	251C212030	**ASSY-CRT-BLUE**	**1&2**
	251C212040	**ASSY-CRT-RED**	**3&4**
	251C212050	**ASSY-CRT-GREEN**	**3&4**
	251C212060	**ASSY-CRT-BLUE**	**3&4**
	251C212070	**ASSY-CRT-RED**	**5**
	251C212080	**ASSY-CRT-GREEN**	**5**
	251C212090	**ASSY-CRT-BLUE**	**5**
		INTEGRATED CIRCUITS	
IC2C01	275P496010	IC-C-MOS - UPD64082GF-3BA	
IC2C02	275P531010	IC-C-MOS - MSM54V16258B-45TS-K	
IC2C03	270P817010	IC - L4931CDT33-TR	
IC2C04	270P526020	IC - MM1111XF	
IC2K01	270P623010	IC - CXA2069Q	
IC2L01	270P623010	IC - CXA2069Q	
IC2V00	270P663020	IC - CXA2101AQ	
IC2V01	275P581010	IC-C-MOS - TC7SET08FU	
IC2X01	270P781010	IC - BA7078AF	
IC2X02	270P781010	IC - BA7078AF	
IC2X06	270P777010	IC - TDA9177	
IC2X07	274P378010	IC-C-MOS - TC74HC4053AF	
IC2X08	275P423010	IC-C-MOS - MAX4583CSE	
IC2Y01	274P378010	IC-C-MOS - TC74HC4053AF	
IC2Y02	275P423010	IC-C-MOS - MAX4583CSE	
IC2Y03	274P378010	IC-C-MOS - TC74HC4053AF	
IC2Y04	275P423010	IC-C-MOS - MAX4583CSE	
IC2Y05	274P378010	IC-C-MOS - TC74HC4053AF	
IC2Y06	275P423010	IC-C-MOS - MAX4583CSE	
IC2Y07	274P378010	IC-C-MOS - TC74HC4053AF	
IC2Y08	275P423010	IC-C-MOS - MAX4583CSE	
IC2Y09	274P378010	IC-C-MOS - TC74HC4053AF	
IC2Y10	275P423010	IC-C-MOS - MAX4583CSE	
IC3A01	270P467010	IC - TDA9855	
IC3E01	**270P750010**	**IC - LA4663**	
IC4A01	270P664010	IC - CXA2102Q	
IC4A02	270P575030	IC - NJM78M09DLA - TE1	
IC4A03	263P384010	IC-C-MOS - TC74HC221AF-EL	
IC4B01	270P261020	IC - TDA8177	
IC5A00	**267P143020**	**KIC - MSPAD101**	
IC5A01	**272P237010**	**IC - LA6324N**	
IC5A02	**266P154010**	**IC - UPC393C**	
IC5A03	**270P704010**	**IC - LM4040BIZ-10.0**	
IC5A05	270P816010	IC - NJM431L	
IC6M00	270P658030	IC - CXA2019AQ/T4	
IC6M90	272P379020	IC - LM1881MX (NSC)	
IC6P00	270P658030	IC - CXA2019AQ/T4	
IC6P90	272P379020	IC - LM1881MX (NSC)	
IC7A00	**275P497050**	**IC-C-MOS - MN102H75K MB2**	
IC7A01	274P901010	IC-C-MOS - TC74HCT7007AF-EL	
IC7C01	270P880010	IC - 24LC64I/SN	
IC7C02	270P880010	IC - 24LC64I/SN	
IC7C03	275P419010	IC-C-MOS - SN74AHCT1G126DBV	
IC7C05	270P645010	IC - TDA8444T	
IC7C07	270P817010	IC - L4931CDT33-TR	
IC7C08	270P706020	IC - MAX823REUK	
IC7C09	270P575020	IC - NJM78M05DLA - TEI	
IC7C10	275P419010	IC-C-MOS - SN74AHCT1G126DBV	
IC7D00	275P451010	IC-C-MOS - TC74HC4066AFN-ELP	
IC7D01	275P560010	IC - ADS931E A2D CONVERTER	
IC7D02	275P560010	IC - ADS931E A2D CONVERTER	
IC7D03	275P560010	IC - ADS931E A2D CONVERTER	
IC7D10	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7D11	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7E00	275P451010	IC-C-MOS - TC74HC4066AFN-ELP	
IC7E01	275P560010	IC - ADS931E A2D CONVERTER	
IC7E02	275P560010	IC - ADS931E A2D CONVERTER	
IC7E03	275P560010	IC - ADS931E A2D CONVERTER	
IC7E10	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7E11	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7G01	275P247010	IC-C-MOS - MB40C958VPFV	
IC7G04	275P534010	IC-C-MOS - TC74HCT574AFW-ELP	
IC7G05	275P534010	IC-C-MOS - TC74HCT574AFW-ELP	
IC7H00	275P716010	IC-C-MOS - uPD4516161AG5-A10-9NF	
IC7H01	275P716010	IC-C-MOS - uPD4516161AG5-A10-9NF	
IC7H02	275P436030	IC-C-MOS - TMC57127PPM	
IC7H03	275P439030	IC-C-MOS - MSM534031E-**TS-	
IC7H04	270P506010	IC - M51957BFP	
IC7H05	263P384010	IC-C-MOS - TC74HC221AF-EL	
IC7H06	270P348010	IC - TLC2932IPW	
IC7H07	275P437020	IC - SLA4028	
IC7H08	270P348010	IC - TLC2932IPW	
IC7H09	274P901010	IC-C-MOS - TC74HCT7007AF-EL	
IC7H11	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7H12	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7H13	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC7H14	275P535010	IC-C-MOS - TC74AC157FN-ELP	
IC8A00	275P223010	IC-C-MOS - CM0007AF	
IC8A01	275P222020	IC-C-MOS - M24C32MN6T	
IC8A02	270P348010	IC - TLC2932IPW	
IC8A03	275P420010	IC-C-MOS - MC74HC74AD	
IC8C01	**267P150010**	**HIC - STK392-570**	
IC8C02	**267P150010**	**HIC - STK392-570**	
IC8D01	263P408020	IC-C-MOS - UPD6376GS	
IC8D02	263P408020	IC-C-MOS - UPD6376GS	
IC8D03	263P408020	IC-C-MOS - UPD6376GS	
IC8D04	263P408020	IC-C-MOS - UPD6376GS	
IC8D05	263P408020	IC-C-MOS - UPD6376GS	
IC8D06	263P408020	IC-C-MOS - UPD6376GS	
IC8D07	270P751010	IC - TL084CD	
IC8D08	270P751010	IC - TL084CD	
IC8D09	270P751010	IC - TL084CD	
IC8D10	272P603010	IC - LM78L05ACZ/NJM78L05A	
IC9A20	**267P151010**	**HIC - STR-G6632**	
IC9A21	**270P816010**	**IC - NJM431L**	
IC9A50	**267P140020**	**HIC - STR-F6628**	
IC9A51	**267P062050**	**HIC - SE110N**	
IC9C01	270P210010	IC - NJM7809FA/AN7809F	
IC9C02	267P131010	HIC - SI-3033C	
IC9C03	270P575030	IC - NJM78M09DLA - TE1	
IC9C05	270P210010	IC - NJM7809FA/AN7809F	

TRANSISTORS

TR-CHIP Type (Listed by Generic Number)

Type	Part No.	Description
PNP	260P817010	TR-CHIP - 2SA1037K-Q

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]

Type	Part No.	Description
PNP	260P817030	TR-CHIP - 2SA1037K-S
NPN	260P818010	TR-CHIP - 2SC2412K-Q
NPN	260P818030	TR-CHIP - 2SC2412K-S
NPN	260P835030	TR-CHIP - 2SC2413K-Q

Conventional Transistors (By Ref #)

Ref #	Part #	Description
Q2W06	260P533010	TR - 2SC3598-E
Q2W09	260P533010	TR - 2SC3598-E
Q2W12	260P533010	TR - 2SC3598-E
Q4B01	260P559030	TR - 2SC1740S-S
Q5A01	260P788010	TR - 2SC4690-O
Q5A02	260P561020	TR - 2SA1371-E
Q5A03	260P386010	TR - 2SC2230-GR
Q5A04	260P559030	TR - 2SC1740S-S
Q5A05	260P560040	TR - 2SA933S-S
Q5A06	**260P560040**	**TR - 2SA933S-S**
Q5A07	261P123010	TRANSISTOR - UNR4113-S - FORM
Q5A08	260P325030	TR - 2SC2655-Y
Q5A10	260P603010	TR - DTA124ES/UN4112
Q5A31	261P071010	TR - 2SC5418 RL
Q5A32	260P587040	TR - 2SC2333-M,L
Q5A33	260P559030	TR - 2SC1740S-S
Q5A34	260P561020	TR - 2SA1371-E
Q5A35	260P386010	TR - 2SC2230-GR
Q5A36	260P630010	TR - 2SD2012
Q5A37	260P559030	TR - 2SC1740S-S
Q5A38	260P559030	TR - 2SC1740S-S
Q5A51	**261P082010**	**TR - 2SK2771-01R**
Q5H08	260P559050	TR - 2SC1740S-E
Q5H09	260P559050	TR - 2SC1740S-E
Q5H10	260P560040	TR - 2SA933S-S
Q5H11	260P573020	TR - 2SB940A-P
Q5H12	260P574020	TR - 2SD1264A-P
Q5K00	260P664030	TR - 2SC4636
Q5K01	260P664030	TR - 2SC4636
Q5K02	260P559050	TR - 2SC1740S-E
Q5K03	260P560040	TR - 2SA933S-S
Q6B00	260P649020	TR - 2SC3942
Q6B02	260P696010	TR - 2SC3790
Q6B03	260P627020	TR - 2SA1480-D,E
Q6B04	260P560040	TR - 2SA933S-S
Q6G00	260P649020	TR - 2SC3942
Q6G02	260P696010	TR - 2SC3790
Q6G03	260P627020	TR - 2SA1480-D,E
Q6R00	260P649020	TR - 2SC3942
Q6R02	260P696010	TR - 2SC3790
Q6R03	260P627020	TR - 2SA1480-D,E
Q7B10	260P560040	TR - 2SA933S-S
Q7L21	260P559030	TR - 2SC1740S-S
Q7L22	260P560040	TR - 2SA933S-S
Q9A20	**261P101010**	**TR - PHP21N06T**
Q9A21	260P559030	TR - 2SC1740S-S
Q9A22	260P559030	TR - 2SC1740S-S
Q9A23	**261P101010**	**TR - PHP21N06T**
Q9A50	260P416030	TR - 2SC2274-F,K-F
Q9A51	260P559030	TR - 2SC1740S-S
Q9A53	260P559030	TR - 2SC1740S-S
Q9A54	260P559030	TR - 2SC1740S-S

Ref #	Part #	Part Name & Description	[#]

DIODES

D2J08	264P484040	DIODE - RD5.6FB3
D2J09	264P484040	DIODE - RD5.6FB3
D2V44	264P828010	D-CHIP - DAN202U/MA142WK
D2W01	264P828010	D-CHIP - DAN202U/MA142WK
D2W02	264P828010	D-CHIP - DAN202U/MA142WK
D2W03	264P501040	DIODE - HZ3ALL
D4B01	264D056020	DIODE - S5500D/EM1Z/ERB12-02RK
D4B04	264P045040	DIODE - 1S24710M
D5A01	264P045040	DIODE - 1S24710M
D5A02	264D056020	DIODE - S5500D/EM1Z/ERB12-02RK
D5A12	264P045040	DIODE - 1S24710M
D5A13	264P483070	DIODE - RD5.1FB1
D5A14	264P045040	DIODE - 1S24710M
D5A31	262P032010	DIODE - FMV-G2GS
D5A34	264P483070	DIODE - RD5.1FB1
D5A35	264P045040	DIODE - 1S24710M
D5A36	264P045040	DIODE - 1S24710M
D5A37	264P521040	DIODE - EU1A
D5A51	**262P039010**	**DIODE - BYW96E/20**
D5A52	**264P899010**	**DIODE - BYV26E**
D5A53	**264P489010**	**DIODE - RD16FB1**
D5A54	**264P724010**	**DIODE - STF14**
D5A55	**264P724010**	**DIODE - STF14**
D5A56	**264P045040**	**DIODE - 1S24710M**
D5A57	**264P521040**	**DIODE - EU1A**
D5A58	**264P045040**	**DIODE - 1S24710M**
D5A59	**264P045040**	**DIODE - 1S24710M**
D5A60	**264P489010**	**DIODE - RD16FB1**
D5H01	264P045040	DIODE - 1S24710M
D5H02	264P045040	DIODE - 1S24710M
D5H09	264P045040	DIODE - 1S24710M
D5K01	264P528030	DIODE - RP1H
D5K02	264P543010	DIODE - EG01
D5K03	264P543010	DIODE - EG01
D5K10	264P528030	DIODE - RP1H
D5K11	264P528030	DIODE - RP1H
D6B00	264P573020	DIODE - EG1A
D6B02	264P045040	DIODE - 1S24710M
D6B03	264P457080	DIODE - RD3.3EB1
D6B04	264P045040	DIODE - 1S24710M
D6B06	264P045040	DIODE - 1S24710M
D6G00	264P573020	DIODE - EG1A
D6G02	264P045040	DIODE - 1S24710M
D6G04	264P045040	DIODE - 1S24710M
D6G06	264P045040	DIODE - 1S24710M
D6R00	264P573020	DIODE - EG1A
D6R02	264P045040	DIODE - 1S24710M
D6R04	264P045040	DIODE - 1S24710M
D6R06	264P045040	DIODE - 1S24710M
D7C03	264P045040	DIODE - 1S24710M
D7C04	264P045040	DIODE - 1S24710M
D7C07	264P828010	D-CHIP - DAN202U/MA142WK
D7C08	264P828010	D-CHIP - DAN202U/MA142WK
D7H01	264P828010	D-CHIP - DAN202U/MA142WK
D7L21	264P212020	D-LED - LN31GPH
D7L23	264P501050	DIODE - HZ3BLL
D8C01	264P045040	DIODE - 1S24710M
D8D03	264P486060	DIODE - RD9.1FB3
D8D04	264P486060	DIODE - RD9.1FB3

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
D9A01	**262P031010**	**DIODE - D6SB80**	
D9A21	264P899010	DIODE - BYV26E	
D9A22	264P045040	DIODE - 1S24710M	
D9A23	264P045040	DIODE - 1S24710M	
D9A24	264P045040	DIODE - 1S24710M	
D9A25	264P045040	DIODE - 1S24710M	
D9A26	264P045040	DIODE - 1S24710M	
D9A27	264P045040	DIODE - 1S24710M	
D9A30	264P566010	DIODE - FMP-G12S	
D9A31	264P045040	DIODE - 1S24710M	
D9A32	264P487070	DIODE - RD12FB1	
D9A33	264P628010	DIODE - FMB-G14L	
D9A50	264P045040	DIODE - 1S24710M	
D9A52	264P045040	DIODE - 1S24710M	
D9A53	264P045040	DIODE - 1S24710M	
D9A54	264P045040	DIODE - 1S24710M	
D9A55	264P045040	DIODE - 1S24710M	
D9A56	264P566010	DIODE - FMP-G12S	
D9A57	264P899010	DIODE - BYV26E	
D9A58	264P588010	DIODE - FML-G16S	
D9A64	264P045040	DIODE - 1S24710M	
D9A65	264P045040	DIODE - 1S24710M	
D9A66	264P045040	DIODE - 1S24710M	

COILS

L1A06	409P923060	EMI-F-CHIP - BLM21B272S	
L1A07	409P923060	EMI-F-CHIP - BLM21B272S	
L1A13	409P923060	EMI-F-CHIP - BLM21B272S	
L1A30	321C114010	COIL-RF - 2200MH-J	
L1A31	325C146030	COIL-CHIP - 10MH-J	
L1B06	409P923060	EMI-F-CHIP - BLM21B272S	
L1B07	409P923060	EMI-F-CHIP - BLM21B272S	
L1B13	409P923060	EMI-F-CHIP - BLM21B272S	
L2C01	325C146050	COIL-CHIP - 15MH-J	
L2C03	409P777080	EMI-F-CHIP - BLM21P221S	
L2C05	409P777080	EMI-F-CHIP - BLM21P221S	
L2C06	409P777080	EMI-F-CHIP - BLM21P221S	
L2C32	409P777080	EMI-F-CHIP - BLM21P221S	
L2D01	325C146030	COIL-CHIP - 10MH-J	
L2D02	325C146030	COIL-CHIP - 10MH-J	
L2D03	325C146030	COIL-CHIP - 10MH-J	
L2J66	409P777080	EMI-F-CHIP - BLM21P221S	
L2K42	409P777080	EMI-F-CHIP - BLM21P221S	
L2K46	325C147080	COIL-CHIP - 180MH-J	
L2K55	325C147080	COIL-CHIP - 180MH-J	
L2K65	409P777080	EMI-F-CHIP - BLM21P221S	
L2K77	409P777080	EMI-F-CHIP - BLM21P221S	
L2L42	409P777080	EMI-F-CHIP - BLM21P221S	
L2L46	325C147080	COIL-CHIP - 180MH-J	
L2L55	325C147080	COIL-CHIP - 180MH-J	
L2V06	409P923060	EMI-F-CHIP - BLM21B272S	
L2V72	409P923060	EMI-F-CHIP - BLM21B272S	
L2W01	409P923060	EMI-F-CHIP - BLM21B272S	
L2W02	409P923060	EMI-F-CHIP - BLM21B272S	
L2W03	409P923060	EMI-F-CHIP - BLM21B272S	
L2W04	409P923060	EMI-F-CHIP - BLM21B272S	
L2W05	409P923060	EMI-F-CHIP - BLM21B272S	
L2W76	409P923060	EMI-F-CHIP - BLM21B272S	
L2W79	409P923060	EMI-F-CHIP - BLM21B272S	
L2X01	409P923060	EMI-F-CHIP - BLM21B272S	
L2X04	409P923060	EMI-F-CHIP - BLM21B272S	
L2Y01	409P923060	EMI-F-CHIP - BLM21B272S	
L2Y03	409P923060	EMI-F-CHIP - BLM21B272S	
L2Y04	409P923060	EMI-F-CHIP - BLM21B272S	
L2Y06	409P923060	EMI-F-CHIP - BLM21B272S	
L2Y07	409P923060	EMI-F-CHIP - BLM21B272S	
L4A02	325C461030	COIL-PEAKING - 10MH-K	
L4A03	409P777080	EMI-F-CHIP - BLM21P221S	
L4B01	321C130010	COIL-RF - 2MH	
L4B02	321C130090	COIL-RF - 10MH-K	
L5A31	411P001010	LEAD-FERRITE	
L5A33	333P052030	COIL-HORIZ-LIN	3&4
L5A33	333P059010	COIL-HORIZ-LIN	125
L5A34	321C130010	COIL-RF - 2MH	
L5A51	321C141030	COIL-RF - 10MH-K	
L5A52	321C141030	COIL-RF - 10MH-K	
L5A53	321C141010	COIL-RF - 6.8MH-M	
L5A54	411D009020	CORE-FERRITE	
L5A55	411D009020	CORE-FERRITE	
L5H41	325C110090	COIL-PEAKING - 4.7MH-K	
L6B00	325C461010	COIL-PEAKING - 6.8MH-K	
L6B01	325C461040	COIL-PEAKING - 12MH-K	
L6B02	325C460080	COIL-PEAKING - 3.9MH-K	
L6B03	325C461030	COIL-PEAKING - 10MH-K	
L6G00	325C461010	COIL-PEAKING - 6.8MH-K	
L6G01	325C461040	COIL-PEAKING - 12MH-K	
L6G02	325C460080	COIL-PEAKING - 3.9MH-K	
L6G03	325C461030	COIL-PEAKING - 10MH-K	
L6M01	409P923060	EMI-F-CHIP - BLM21B272S	
L6M03	409P777080	EMI-F-CHIP - BLM21P221S	
L6M25	409P777080	EMI-F-CHIP - BLM21P221S	
L6P03	409P923060	EMI-F-CHIP - BLM21B272S	
L6P25	409P923060	EMI-F-CHIP - BLM21B272S	
L6R00	325C461010	COIL-PEAKING - 6.8MH-K	
L6R01	325C461040	COIL-PEAKING - 12MH-K	
L6R02	325C460080	COIL-PEAKING - 3.9MH-K	
L6R03	325C461030	COIL-PEAKING - 10MH-K	
L6R04	321C141010	COIL-RF - 6.8MH-M	
L7A86	409P923060	EMI-F-CHIP - BLM21B272S	
L7B28	409P923060	EMI-F-CHIP - BLM21B272S	
L7B41	409P923060	EMI-F-CHIP - BLM21B272S	
L7C02	409P923060	EMI-F-CHIP - BLM21B272S	
L7C03	409P777050	EMI-F-CHIP - BLM21B201S	
L7C04	409P777050	EMI-F-CHIP - BLM21B201S	
L7C05	409P777050	EMI-F-CHIP - BLM21B201S	
L7C06	409P923060	EMI-F-CHIP - BLM21B272S	
L7C07	409P777050	EMI-F-CHIP - BLM21B201S	
L7C08	409P923060	EMI-F-CHIP - BLM21B272S	
L7C09	409P923060	EMI-F-CHIP - BLM21B272S	
L7C10	409P923060	EMI-F-CHIP - BLM21B272S	
L7C11	409P923060	EMI-F-CHIP - BLM21B272S	
L7C12	325C241030	COIL-CHIP - 10MH-K	
L7D01	325C241030	COIL-CHIP - 10MH-K	
L7D11	325C242010	COIL-CHIP - 47MH-K	
L7D12	409P777020	EMI-F-CHIP - BLM21A05	
L7D13	325C241030	COIL-CHIP - 10MH-K	
L7D14	325C241030	COIL-CHIP - 10MH-K	
L7D15	325C241030	COIL-CHIP - 10MH-K	

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
L7E01	325C241030	COIL-CHIP - 10MH-K	
L7E11	325C242010	COIL-CHIP - 47MH-K	
L7E12	409P777020	EMI-F-CHIP - BLM21A05	
L7E13	325C241030	COIL-CHIP - 10MH-K	
L7E14	325C241030	COIL-CHIP - 10MH-K	
L7E15	325C241030	COIL-CHIP - 10MH-K	
L7G00	325C242050	COIL-CHIP - 100MH-K	
L7G10	325C242050	COIL-CHIP - 100MH-K	
L7G11	325C241030	COIL-CHIP - 10MH-K	
L7G12	325C241030	COIL-CHIP - 10MH-K	
L7H10	325C241030	COIL-CHIP - 10MH-K	
L7H11	409P777080	EMI-F-CHIP - BLM21P221S	
L7H12	325C241030	COIL-CHIP - 10MH-K	
L7H13	325C241030	COIL-CHIP - 10MH-K	
L7H14	325C241030	COIL-CHIP - 10MH-K	
L7H15	325C241030	COIL-CHIP - 10MH-K	
L7H16	325C241030	COIL-CHIP - 10MH-K	
L7H17	325C241030	COIL-CHIP - 10MH-K	
L7H19	409P777080	EMI-F-CHIP - BLM21P221S	
L7H20	325C241030	COIL-CHIP - 10MH-K	
L7H30	325C241030	COIL-CHIP - 10MH-K	
L7H31	325C241030	COIL-CHIP - 10MH-K	
L7H32	409P777080	EMI-F-CHIP - BLM21P221S	
L7H38	325C241030	COIL-CHIP - 10MH-K	
L7H40	325C241030	COIL-CHIP - 10MH-K	
L7H41	409P777080	EMI-F-CHIP - BLM21P221S	
L7H42	409P777080	EMI-F-CHIP - BLM21P221S	
L7H50	409P777080	EMI-F-CHIP - BLM21P221S	
L7H60	325C241030	COIL-CHIP - 10MH-K	
L7H70	325C241030	COIL-CHIP - 10MH-K	
L7H80	325C241030	COIL-CHIP - 10MH-K	
L7K01	325C121030	COIL-PEAKING - 10MH-K	
L8A00	409P777080	EMI-F-CHIP - BLM21P221S	
L8A01	409P777080	EMI-F-CHIP - BLM21P221S	
L8A02	409P777080	EMI-F-CHIP - BLM21P221S	
L8A03	409P777080	EMI-F-CHIP - BLM21P221S	
L8A04	325C461030	COIL-PEAKING - 10MH-K	
L8C01	321C142030	COIL-RF - 68MH-K	
L8C02	321C142030	COIL-RF - 68MH-K	
L8C03	321C142030	COIL-RF - 68MH-K	
L8C04	321C142030	COIL-RF - 68MH-K	
L8D02	409P777080	EMI-F-CHIP - BLM21P221S	
L8D03	409P777080	EMI-F-CHIP - BLM21P221S	
L8D04	409P777080	EMI-F-CHIP - BLM21P221S	
L9A02	**351P209010**	**LINE FILTER - SU16VD-40010**	
L9A20	411D009020	CORE-FERRITE	
L9A21	411D009020	CORE-FERRITE	
L9A22	321C141070	COIL-RF - 22MH-K	
L9A23	321C141070	COIL-RF - 22MH-K	
L9A24	321C141070	COIL-RF - 22MH-K	
L9A50	411D009020	CORE-FERRITE	
L9A51	411D009020	CORE-FERRITE	
L9A52	411D009020	CORE-FERRITE	
L9A53	321C141010	COIL-RF - 6.8MH-M	
L9A54	411D009020	CORE-FERRITE	
L9A55	321C142030	COIL-RF - 68MH-K	
L9A56	411D009020	CORE-FERRITE	
L9A57	321C141070	COIL-RF - 22MH-K	
L9A62	321C141010	COIL-RF - 6.8MH-M	
L9A63	321C141010	COIL-RF - 6.8MH-M	

Ref #	Part #	Part Name & Description	[#]
L9A64	321C130090	COIL-RF - 10MH-K	
L9A65	321C141070	COIL-RF - 22MH-K	
L9A66	321C141070	COIL-RF - 22MH-K	
L9A67	321C130090	COIL-RF - 10MH-K	
L9D00	**351P203010**	**LINE-FILTER - SS35V-45022**	
L9D01	**351P203010**	**LINE-FILTER - SS35V-45022**	
LC7D02	409P875090	EMI-F-CHIP - ELKE103FA	
LC7D05	409P875090	EMI-F-CHIP - ELKE103FA	
LC7D10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D11	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D12	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D14	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E11	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E12	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E14	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G01	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G02	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G03	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G04	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G05	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G06	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G07	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G08	409P875090	EMI-F-CHIP - ELKE103FA	
LC7G09	409P875090	EMI-F-CHIP - ELKE103FA	
LC7G10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G11	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G12	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G14	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G15	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J03	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J04	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J05	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J14	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7J15	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC8A21	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC8A22	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC8A23	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC8A25	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LF7D00	409P901010	LP-FILTER - 14MHZ SMD	
LF7D01	409P901010	LP-FILTER - 14MHZ SMD	
LF7D02	409P901010	LP-FILTER - 14MHZ SMD	
LF7E00	409P901010	LP-FILTER - 14MHZ SMD	
LF7E01	409P901010	LP-FILTER - 14MHZ SMD	
LF7E02	409P901010	LP-FILTER - 14MHZ SMD	
LF7G00	409P901010	LP-FILTER - 14MHZ SMD	
LF7G01	409P901010	LP-FILTER - 14MHZ SMD	
LF7G02	409P901010	LP-FILTER - 14MHZ SMD	

TRANSFORMERS

T5A31	**349P216010**	**TRANS-HORIZ**	
T5A32	**336P040010**	**TRANS-HORIZ-DRIVE**	
T5A51	**334P278010**	**TRANS-FLYBACK**	
T9A20	**350P766010**	**TRANS-POWER**	
T9A50	**350P765010**	**TRANS-POWER**	

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]

VARIABLE RESISTORS

	129P059050	VR-FOCUS - MHF116-50W	
RV9D00	**265P100010**	**VARISTOR - ERZV10D271/ERZVEAV271**	

RESISTORS

R-M-CHIP Type Resistors (Listed by Value)

Value	Part No.	Value	Part no.
1/16W 0OHM	103P509050	1/16W 2.4K-F	103P493040
1/10W 10-J	103P400010	1/16W 2.7K-F	103P493050
1/10W 22-J	103P400050	1/16W 2.7K-J	103P503000
1/16W 22-J	103P500050	1/16W 3.3K-F	103P493070
1/10W 33-J	103P400070	1/16W 3.3K-J	103P503010
1/10W 39-J	103P400080	1/16W 3.9K-F	103P493090
1/16W 39-J	103P500080	1/16W 3.9K-J	103P503020
1/16W 47-J	103P500090	1/16W 4.3K-F	103P494000
1/10W 56-J	103P401000	1/16W 4.7K-F	103P494010
1/16W 56-J	103P501000	1/16W 4.7K-J	103P503030
1/16W 100-J	103P501030	1/16W 5.1K-F	103P494020
1/16W 120-J	103P501040	1/16W 5.6K-J	103P503040
1/10W 150-J	103P401050	1/16W 6.2K-F	103P494040
1/16W 150-J	103P501050	1/16W 6.8K-F	103P494050
1/16W 160-F	103P490060	1/16W 6.8K-J	103P503050
1/16W 180-F	103P490070	1/16W 8.2K-F	103P494070
1/16W 180-J	103P501060	1/16W 8.2K-J	103P503060
1/16W 220-J	103P501070	1/16W 10K-F	103P494090
1/16W 240-F	103P491000	1/16W 10K-J	103P503070
1/16W 270-J	103P501080	1/16W 12K-J	103P503080
1/10W 300-F	103P471020	1/16W 13K-F	103P495020
1/16W 330-F	103P491030	1/16W 15K-F	103P495030
1/16W 330-J	103P501090	1/16W 15K-J	103P503090
1/16W 470-J	103P502010	1/16W 18K-J	103P504000
1/16W 510-F	103P491080	1/16W 22K-F	103P495070
1/10W 560-J	103P402020	1/16W 22K-J	103P504010
1/16W 560-F	103P491090	1/16W 24K-F	103P495080
1/16W 560-J	103P502020	1/16W 27K-F	103P495090
1/16W 620-F	103P492000	1/16W 27K-J	103P504020
1/16W 680-F	103P492010	1/16W 33K-F	103P496010
1/16W 680-J	103P502030	1/16W 33K-J	103P504030
1/10W 820-J	103P402040	1/16W 36K-F	103P496020
1/16W 820-F	103P492030	1/16W 47K-F	103P496050
1/16W 820-J	103P502040	1/16W 47K-J	103P504050
1/10W 1K-J	103P402050	1/16W 56K-J	103P504060
1/16W 1K-F	103P492050	1/16W 68K-J	103P504070
1/16W 1K-J	103P502050	1/16W 75K-J	103P509090
1/16W 1.2K-F	103P492070	1/16W 82K-J	103P504080
1/16W 1.2K-J	103P502060	1/16W 100K-F	103P497030
1/16W 1.3K-F	103P492080	1/16W 100K-J	103P504090
1/10W 1.5K-J	103P402070	1/16W 120K-J	103P505000
1/16W 1.5K-F	103P492090	1/16W 150K-J	103P505010
1/16W 1.5K-J	103P502070	1/16W 270K-J	103P505040
1/16W 1.6K-F	103P493000	1/16W 330K-J	103P505050
1/10W 1.8K-J	103P402080	1/16W 390K-J	103P505060
1/16W 1.8K-J	103P502080	1/16W 470K-J	103P505070
1/16W 2K-F	103P493020	1/16W 560K-J	103P505080
1/10W 2.2K-J	103P402090	1/16W 680K-J	103P505090
1/16W 2.2K-F	103P493030	1/16W 820K-J	103P506000
1/16W 2.2K-J	103P502090	1/16W 3.3M-J	103P506070

Ref #	Part #	Part Name & Description	[#]

Common Resistors (By Ref. #)

Ref.	Part No.	Description	
R2J70	103P711080	R-CARBON - 1/4W 270-J	
R2J71	103P711030	R-CARBON - 1/4W 100-J	
R2W13	103P460040	R-METAL - 1/4W 130-F	
R2W17	103C171040	R-METAL - 1W 120-J	
R2W21	103P460040	R-METAL - 1/4W 130-F	
R2W25	103C171040	R-METAL - 1W 120-J	
R2W37	103P460050	R-METAL - 1/4W 150-F	
R2W63	103C171040	R-METAL - 1W 120-J	
R3E02	103P712080	R-CARBON - 1/4W 1.8K-J	
R3E04	103P712080	R-CARBON - 1/4W 1.8K-J	
R3E05	103P714060	R-CARBON - 1/4W 56K-J	
R3E06	103P713030	R-CARBON - 1/4W 4.7K-J	
R3E15	103P713050	R-CARBON - 1/4W 6.8K-J	
R3E16	103P713050	R-CARBON - 1/4W 6.8K-J	
R4B02	103P463060	R-METAL - 1/4W 3K-F	125
R4B05	103P713090	R-CARBON - 1/4W 15K-J	
R4B10	103C188050	R-METAL - 2W 2.7-J	
R4B12	103C188040	R-METAL - 2W 2.2-J	
R4B17	103P712010	R-CARBON - 1/4W 470-J	
R4B20	103P711090	R-CARBON - 1/4W 330-J	
R4B23	103P711070	R-CARBON - 1/4W 220-J	
R4B24	103P712050	R-CARBON - 1/4W 1K-J	
R4B25	103P712050	R-CARBON - 1/4W 1K-J	
R4B26	103P713000	R-CARBON - 1/4W 2.7K-J	
R4B27	103P714080	R-CARBON - 1/4W 82K-J	
R4B28	103P464040	R-METAL - 1/4W 2.4K-F	1-4
R4B28	103P464060	R-METAL - 1/4W 7.5K-F	5
R5A01	103P712050	R-CARBON - 1/4W 1K-J	
R5A02	103P712090	R-CARBON - 1/4W 2.2K-J	
R5A03	103P713010	R-CARBON - 1/4W 3.3K-J	
R5A04	103P713090	R-CARBON - 1/4W 15K-J	
R5A05	103P713070	R-CARBON - 1/4W 10K-J	
R5A06	103P713070	R-CARBON - 1/4W 10K-J	
R5A07	103P714030	R-CARBON - 1/4W 33K-J	
R5A08	103C194010	R-METAL - 3W 22K-J	
R5A09	103P714040	R-CARBON - 1/4W 39K-J	
R5A10	103P714040	R-CARBON - 1/4W 39K-J	
R5A11	103P713070	R-CARBON - 1/4W 10K-J	
R5A12	103P712050	R-CARBON - 1/4W 1K-J	
R5A15	103P713010	R-CARBON - 1/4W 3.3K-J	
R5A16	103P713090	R-CARBON - 1/4W 15K-J	
R5A17	103P712050	R-CARBON - 1/4W 1K-J	
R5A18	103P711030	R-CARBON - 1/4W 100-J	
R5A19	103P461070	R-METAL - 1/4W 470-F	
R5A20	103P714050	R-CARBON - 1/4W 47K-J	
R5A21	103P713000	R-CARBON - 1/4W 2.7K-J	
R5A22	103P714010	R-CARBON - 1/4W 22K-J	
R5A23	103P713030	R-CARBON - 1/4W 4.7K-J	
R5A24	103P714070	R-CARBON - 1/4W 68K-J	
R5A25	103P712010	R-CARBON - 1/4W 470-J	
R5A26	103P712090	R-CARBON - 1/4W 2.2K-J	
R5A29	103P714010	R-CARBON - 1/4W 22K-J	
R5A30	103C181060	R-METAL - 2W 180-J	
R5A31	103P711030	R-CARBON - 1/4W 100-J	
R5A34	103P711010	R-CARBON - 1/4W 68-J	
R5A36	103C393020	R-METAL-P - 3W 3.9K-J	
R5A37	103C393010	R-METAL-P - 3W 3.3K-J	3&4
R5A37	103C393020	R-METAL-P - 3W 3.9K-J	125

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
R5A38	103C397070	R-METAL-P - 3W 0.56-K	
R5A39	103C170050	R-METAL - 1W 22-J	
R5A40	103P714090	R-CARBON - 1/4W 100K-J	
R5A41	103P714040	R-CARBON - 1/4W 39K-J	
R5A42	103P713030	R-CARBON - 1/4W 4.7K-J	
R5A43	103P714010	R-CARBON - 1/4W 22K-J	
R5A45	103C393080	R-METAL-P - 3W 12K-J	
R5A46	103C391050	R-METAL-P - 3W 150-J	
R5A47	103P714030	R-CARBON - 1/4W 33K-J	
R5A49	103P713050	R-CARBON - 1/4W 6.8K-J	
R5A50	103P712090	R-CARBON - 1/4W 2.2K-J	
R5A51	**102P107000**	**R-WIRE - 2W 0.15-K**	
R5A52	**103P712010**	**R-CARBON - 1/4W 470-J**	
R5A53	**103P711000**	**R-CARBON - 1/4W 56-J**	
R5A54	103C190090	R-METAL - 3W 47-J	
R5A55	**103P712050**	**R-CARBON - 1/4W 1K-J**	
R5A56	**103P715060**	**R-CARBON - 1/4W 390K-J**	
R5A57	103P711030	R-CARBON - 1/4W 100-J	
R5A59	**103P461030**	**R-METAL - 1/4W 330-F**	
R5A60	**103P463010**	**R-METAL - 1/4W 1.8K-F**	
R5A61	**103P713060**	**R-CARBON - 1/4W 8.2K-J**	
R5A62	103P711030	R-CARBON - 1/4W 100-J	
R5A63	103P713090	R-CARBON - 1/4W 15K-J	
R5A64	**103P714090**	**R-CARBON - 1/4W 100K-J**	
R5A65	**103P141030**	**R-CARBON - 1/2W 100-J**	
R5A68	**103P463080**	**R-METAL - 1/4W 2.4K-F**	
R5A69	**103P460090**	**R-METAL - 1/4W 220-F**	
R5A71	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A72	**103P461070**	**R-METAL - 1/4W 470-F**	
R5A73	**103P714080**	**R-CARBON - 1/4W 82K-J**	
R5A74	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A75	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A76	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A78	**103P714010**	**R-CARBON - 1/4W 22K-J**	
R5A81	103P711030	R-CARBON - 1/4W 100-J	
R5A82	**103P370090**	**R-FUSE - 1/4W 47-J**	
R5A83	**103P464070**	**R-METAL - 1/4W 8.2K-F**	
R5A84	**103P464070**	**R-METAL - 1/4W 8.2K-F**	
R5A85	103P711010	R-CARBON - 1/4W 68-J	
R5A87	103P711030	R-CARBON - 1/4W 100-J	
R5A88	103P464000	R-METAL - 1/4W 4.3K-F	
R5A89	103P463050	R-METAL - 1/4W 2.7K-F	
R5A90	103P713030	R-CARBON - 1/4W 4.7K-J	
R5A91	103P714090	R-CARBON - 1/4W 100K-J	
R5A92	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A96	103P713070	R-CARBON - 1/4W 10K-J	
R5A97	**103P711030**	**R-CARBON - 1/4W 100-J**	
R5A98	103C197090	R-METAL - 3W 0.82-J	1-4
R5A99	103P714020	R-CARBON - 1/4W 27K-J	
R5H02	103P758000	R-FUSE - 1/4W 1-J	
R5H22	103P711030	R-CARBON - 1/4W 100-J	
R5H40	103P712040	R-CARBON - 1/4W 820-J	
R5H41	103P712090	R-CARBON - 1/4W 2.2K-J	
R5H42	103P711050	R-CARBON - 1/4W 150-J	
R5H47	103C172010	R-METAL - 1W 470-J	
R5H48	103P712060	R-CARBON - 1/4W 1.2K-J	
R5H49	103P714070	R-CARBON - 1/4W 68K-J	
R5H50	103P714070	R-CARBON - 1/4W 68K-J	
R5H51	103P712060	R-CARBON - 1/4W 1.2K-J	
R5H53	103P713080	R-CARBON - 1/4W 12K-J	

Ref #	Part #	Part Name & Description	[#]
R5H59	103C191070	R-METAL - 3W 220-J	
R5H60	103C178080	R-METAL - 1W 4.7-J	
R5H84	103P713050	R-CARBON - 1/4W 6.8K-J	
R5K09	103P762020	R-FUSE - 1/2W 560-J	
R5K10	103P711010	R-CARBON - 1/4W 68-J	
R5K12	**103P760060**	**R-FUSE - 1/2W 27-J**	
R5K19	103P464000	R-METAL - 1/4W 4.3K-F	
R5K20	103P712060	R-CARBON - 1/4W 1.2K-J	
R5K21	103P713070	R-CARBON - 1/4W 10K-J	
R5K25	103P713040	R-CARBON - 1/4W 5.6K-J	
R5K31	103P711030	R-CARBON - 1/4W 100-J	
R5K34	**103P760060**	**R-FUSE - 1/2W 27-J**	
R5K46	103P712010	R-CARBON - 1/4W 470-J	
R5K50	**103P762050**	**R-FUSE - 1/2W 1K-J**	
R6B00	103C392090	R-METAL-P - 3W 2.2K-J	
R6B01	103C392090	R-METAL-P - 3W 2.2K-J	
R6B02	103C392090	R-METAL-P - 3W 2.2K-J	
R6B03	103C392090	R-METAL-P - 3W 2.2K-J	
R6B08	103P711030	R-CARBON - 1/4W 100-J	
R6B09	103P711030	R-CARBON - 1/4W 100-J	
R6B13	**103P761070**	**R-FUSE - 1/2W 220-J**	
R6B14	103P141070	R-CARBON - 1/2W 220-J	
R6B25	103P711030	R-CARBON - 1/4W 100-J	
R6B26	103P713050	R-CARBON - 1/4W 6.8K-J	
R6B30	103P713070	R-CARBON - 1/4W 10K-J	
R6G00	103C392090	R-METAL-P - 3W 2.2K-J	
R6G01	103C392090	R-METAL-P - 3W 2.2K-J	
R6G02	103C392090	R-METAL-P - 3W 2.2K-J	
R6G03	103C392090	R-METAL-P - 3W 2.2K-J	
R6G08	103P711030	R-CARBON - 1/4W 100-J	
R6G09	103P711030	R-CARBON - 1/4W 100-J	
R6G13	**103P761070**	**R-FUSE - 1/2W 220-J**	
R6G14	103P141070	R-CARBON - 1/2W 220-J	
R6G30	103P713070	R-CARBON - 1/4W 10K-J	
R6R00	103C392090	R-METAL-P - 3W 2.2K-J	
R6R01	103C392090	R-METAL-P - 3W 2.2K-J	
R6R02	103C392090	R-METAL-P - 3W 2.2K-J	
R6R03	103C392090	R-METAL-P - 3W 2.2K-J	
R6R08	103P711030	R-CARBON - 1/4W 100-J	
R6R09	103P711030	R-CARBON - 1/4W 100-J	
R6R13	**103P761070**	**R-FUSE - 1/2W 220-J**	
R6R14	103P141070	R-CARBON - 1/2W 220-J	
R6R30	103P713070	R-CARBON - 1/4W 10K-J	
R7C99	103C178090	R-METAL - 1W 5.6-J	
R7K01	103P712050	R-CARBON - 1/4W 1K-J	
R7K02	103P713010	R-CARBON - 1/4W 3.3K-J	
R7L21	103P712050	R-CARBON - 1/4W 1K-J	
R7L22	103P715040	R-CARBON - 1/4W 270K-J	
R7L23	103P713070	R-CARBON - 1/4W 10K-J	
R7L24	103P713070	R-CARBON - 1/4W 10K-J	
R7L25	103P712080	R-CARBON - 1/4W 1.8K-J	
R7L26	103P462090	R-METAL - 1/4W 1.5K-F	
R7L29	103P464030	R-METAL - 1/4W 5.6K-F	
R7L32	103P466070	R-METAL - 1/4W 56K-F	
R8C03	103P711090	R-CARBON - 1/4W 330-J	
R8C07	103C391050	R-METAL-P - 3W 150-J	
R8C11	103P711090	R-CARBON - 1/4W 330-J	
R8C15	103C391050	R-METAL-P - 3W 150-J	
R8C19	103P711090	R-CARBON - 1/4W 330-J	
R8C23	103C391050	R-METAL-P - 3W 150-J	

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
R8C27	103P711090	R-CARBON - 1/4W 330-J	
R8C31	103C391050	R-METAL-P - 3W 150-J	
R8C35	103P711090	R-CARBON - 1/4W 330-J	
R8C39	103C391050	R-METAL-P - 3W 150-J	
R8C43	103P711090	R-CARBON - 1/4W 330-J	
R8C47	103C391050	R-METAL-P - 3W 150-J	
R8C60	103C191090	R-METAL - 3W 330-J	
R8C61	103C191090	R-METAL - 3W 330-J	
R8C62	103P712090	R-CARBON - 1/4W 2.2K-J	
R8C63	103P712090	R-CARBON - 1/4W 2.2K-J	
R8C64	103P712090	R-CARBON - 1/4W 2.2K-J	
R8C65	103P712090	R-CARBON - 1/4W 2.2K-J	
R8C66	103P712090	R-CARBON - 1/4W 2.2K-J	
R8C67	103P712090	R-CARBON - 1/4W 2.2K-J	
R8C68	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A02	102P080010	R-CEMENT-WIRE - 5W 2.2-K	
R9A03	**109C010010**	**R-COMPOSITION - 1/2W 1M-K**	
R9A05	**109C010010**	**R-COMPOSITION - 1/2W 1M-K**	
R9A06	**109C010010**	**R-COMPOSITION - 1/2W 1M-K**	
R9A20	103P713010	R-CARBON - 1/4W 3.3K-J	
R9A21	103C394040	R-METAL-P - 3W 39K-J	
R9A22	103C183070	R-METAL - 2W 10K-J	
R9A24	103P713040	R-CARBON - 1/4W 5.6K-J	
R9A25	103P713010	R-CARBON - 1/4W 3.3K-J	
R9A26	103P712030	R-CARBON - 1/4W 680-J	
R9A27	103C187050	R-METAL - 2W 0.39-J	
R9A28	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A30	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A31	103P713020	R-CARBON - 1/4W 3.9K-J	
R9A32	103P714010	R-CARBON - 1/4W 22K-J	
R9A34	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A35	103P713050	R-CARBON - 1/4W 6.8K-J	
R9A36	103P714090	R-CARBON - 1/4W 100K-J	
R9A37	103P712070	R-CARBON - 1/4W 1.5K-J	
R9A38	103P714090	R-CARBON - 1/4W 100K-J	
R9A39	103P714010	R-CARBON - 1/4W 22K-J	
R9A40	103P712010	R-CARBON - 1/4W 470-J	
R9A41	103P712050	R-CARBON - 1/4W 1K-J	
R9A42	103P464050	R-METAL - 1/4W 6.8K-F	
R9A43	103P466070	R-METAL - 1/4W 56K-F	
R9A44	103P464010	R-METAL - 1/4W 4.7K-F	
R9A50	103P713010	R-CARBON - 1/4W 3.3K-J	
R9A51	103P715050	R-CARBON - 1/4W 330K-J	
R9A53	103P712030	R-CARBON - 1/4W 680-J	
R9A54	102P107000	R-WIRE - 2W 0.15-K	
R9A55	102P106090	R-WIRE - 2W 0.12-K	
R9A56	103P713010	R-CARBON - 1/4W 3.3K-J	
R9A57	103P713010	R-CARBON - 1/4W 3.3K-J	
R9A60	103P714050	R-CARBON - 1/4W 47K-J	
R9A61	103P713040	R-CARBON - 1/4W 5.6K-J	
R9A62	103P713070	R-CARBON - 1/4W 10K-J	
R9A63	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A66	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A68	103C180050	R-METAL - 2W 22-J	
R9A69	103C180050	R-METAL - 2W 22-J	
R9A75	103P714090	R-CARBON - 1/4W 100K-J	
R9A77	103P714090	R-CARBON - 1/4W 100K-J	
R9A78	103P711030	R-CARBON - 1/4W 100-J	
R9A79	103P711030	R-CARBON - 1/4W 100-J	
R9A80	103C193060	R-METAL - 3W 8.2K-J	
R9A83	103P463090	R-METAL - 1/4W 3.9K-F	
R9C01	103C177020	R-METAL - IW 0.22-J	
R9C10	103C170020	R-METAL - 1W 12-J	
R9D00	**109D036020**	**R-COMPOSITION - 1/2W 4.7M-K**	

CAPACITORS AND TRIMMERS

CHIP Type Capacitors (by Value)

Value	Part No.	Value	Part No.
50V 10P-C	154P341010	50V 8200P-K	141P142000
50V 15P-J	154P341050	50V 0.01M-K	141P142010
50V 22P-J	154P341090	50V 0.01M-Z	141P143080
50V 33P-J	154P342030	50V 0.012M-K	141P142020
50V 47P-J	154P342070	50V 0.015M-K	141P142030
50V 56P-J	154P353000	25V 0.033M-K	141P142070
50V 82P-J	154P343030	25V 0.047M-K	141P142090
50V 100P-J	154P343050	25V 0.068M-K	141P143010
50V 100P-J	154P353060	16V 0.1M-K	141P143030
50V 120P-J	154P343070	25V 0.1M-K	141P139030
50V 120P-J	154P353080	25V 0.1M-Z	141P144020
50V 150P-J	154P354000	50V 0.1M-K	141P138020
50V 220P-J	154P354040	25V 0.15M-K	141P139050
50V 270P-J	154P344050	16V 0.22M-K	141P139070
50V 330P-J	154P344070	16V 0.47M-K	141P139090
50V 470P-J	154P355020	16V 0.47M-Z	141P144050
50V 470P-J	154P345010	16V 1M-K	141P134070
50V 560P-J	154P355040	16V 1M-Z	141P144060
50V 1000P-J	154P336090	50V 1M-M 105C	181P526010
50V 2200P-K	141P131030	50V 2.2M-M 105C	181P526020
50V 2200P-Z	141P143060	6.3V 22M-M 105C	181P520010
50V 2700P-J	154P337040	6.3V 47M-M 105C	181P520030
50V 3900P-J	154P329010	16V 47M-M 105C	181P522060
50V 4700P-K	141P141070	6.3V 100M-M 105C	181P520040
50V 5600P-J	154P329030		

Conventional Capacitors (by Ref #)

Ref #	Part #	Description
C1A23	172P262010	C-M-POLY - 50V 0.047M-J
C1A29	181P352040	C-ELEC - 16V 100M-M
C1A30	181P352040	C-ELEC - 16V 100M-M
C1B29	181P352040	C-ELEC - 16V 100M-M
C2C21	181P352030	C-ELEC - 16V 47M-M
C2D19	181P352030	C-ELEC - 16V 47M-M
C2D31	181P352030	C-ELEC - 16V 47M-M
C2J66	181P352060	C-ELEC - 16V 330M-M
C2K43	181P352070	C-ELEC - 16V 470M-M
C2L41	181P352070	C-ELEC - 16V 470M-M
C2V07	181P352050	C-ELEC - 16V 220M-M
C2V72	181P352050	C-ELEC - 16V 220M-M
C2W02	181P352080	C-ELEC - 16V 1000M-M
C2W04	181P352050	C-ELEC - 16V 220M-M
C2W05	181P352030	C-ELEC - 16V 47M-M
C2W09	181P352030	C-ELEC - 16V 47M-M
C2W14	181P352030	C-ELEC - 16V 47M-M
C2W76	181P352030	C-ELEC - 16V 47M-M
C2X02	181P352030	C-ELEC - 16V 47M-M
C2X29	181P352040	C-ELEC - 16V 100M-M
C2X43	181P124040	C-ELEC-NP - 50V 10M-M
C2X45	181P352030	C-ELEC - 16V 47M-M
C2X47	181P124040	C-ELEC-NP - 50V 10M-M
C2X50	181P124040	C-ELEC-NP - 50V 10M-M

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
C2Y01	181P352030	C-ELEC - 16V 47M-M	
C2Y15	181P352030	C-ELEC - 16V 47M-M	
C2Y21	181P124040	C-ELEC-NP - 50V 10M-M	
C2Y23	181P352030	C-ELEC - 16V 47M-M	
C2Y25	181P124040	C-ELEC-NP - 50V 10M-M	
C2Y28	181P124040	C-ELEC-NP - 50V 10M-M	
C2Y31	181P124040	C-ELEC-NP - 50V 10M-M	
C2Y35	181P124040	C-ELEC-NP - 50V 10M-M	
C2Y38	181P124040	C-ELEC-NP - 50V 10M-M	
C2Y41	181P352030	C-ELEC - 16V 47M-M	
C2Y44	181P352030	C-ELEC - 16V 47M-M	
C3A11	181P352040	C-ELEC - 16V 100M-M	
C3A15	181P124020	C-ELEC-NP - 50V 4.7M-M	
C3A27	181P352060	C-ELEC - 16V 330M-M	
C3A30	181P352040	C-ELEC - 16V 100M-M	
C3A38	181P124020	C-ELEC-NP - 50V 4.7M-M	
C3E09	172P262050	C-M-POLY - 50V 0.1M-J	
C3E11	172P262050	C-M-POLY - 50V 0.1M-J	
C3E12	172P262050	C-M-POLY - 50V 0.1M-J	
C3E14	172P262050	C-M-POLY - 50V 0.1M-J	
C4A04	172P262050	C-M-POLY - 50V 0.1M-J	
C4A05	172P262050	C-M-POLY - 50V 0.1M-J	
C4A10	181P352030	C-ELEC - 16V 47M-M	
C4A14	181P352030	C-ELEC - 16V 47M-M	
C4A34	181P352030	C-ELEC - 16V 47M-M	
C4A35	172P262090	C-M-POLY - 50V 0.22M-J	
C4B01	172P262000	C-M-POLY - 50V 0.039M-J	1-4
C4B02	181P358000	C-ELEC - 35V 1000M-M	
C4B13	172P262020	C-M-POLY - 50V 0.056M-J	
C5A03	142P020050	C-CER - B50V 470P-K	
C5A13	181P352040	C-ELEC - 16V 100M-M	
C5A21	172P262050	C-M-POLY - 50V 0.1M-J	
C5A31	172P580050	C-M-PLA-PP - 1800V 1500P-J	3&4
C5A32	172P581030	C-M-PLA-PP - 1800V 3300P-J	3&4
C5A32	172P581040	C-M-PLA-PP - 1800V 3600P-J	125
C5A33	172P581030	C-M-PLA-PP - 1800V 3300P-J	3&4
C5A33	172P581040	C-M-PLA-PP - 1800V 3600P-J	125
C5A34	154P262000	C-CER - R2KV 220P-K	3&4
C5A34	154P262040	C-CER - R2KV 470P-K	125
C5A35	142P011070	C-CER - B500V 2200P-K	3&4
C5A39	142P011000	C-CER - B500V 560P-K	
C5A40	142P011000	C-CER - B500V 560P-K	
C5A42	181P352030	C-ELEC - 16V 47M-M	
C5A51	**154P260010**	**C-CER - R1KV 220P-K**	
C5A52	**172P460010**	**C-M-PLA-PP - 2000V 1000P-J**	
C5A53	**172P460030**	**C-M-PLA-PP - 2000V 1200P-J**	
C5A54	185D120010	C-ELEC - H160V 330M-M 105C	
C5A55	172P088060	C-PLAST-PP - 630V 6800P-J	
C5A60	**172P262050**	**C-M-POLY - 50V 0.1M-J**	
C5A64	**181P352010**	**C-ELEC - 16V 22M-M**	
C5A70	**172P384030**	**C-M-POLY - 100V 3.3M-K**	
C5A71	**172P262060**	**C-M-POLY - 50V 0.12M-J**	
C5H16	172P186030	C-PLAST-PP - 200V 0.01M-K	
C5H20	181P352040	C-ELEC - 16V 100M-M	
C5H22	155P112090	C-CER - 500V 56P-J	
C5H24	181P192060	C-ELEC - 200V 22M-M	
C5K03	181P352040	C-ELEC - 16V 100M-M	
C5K12	181P352040	C-ELEC - 16V 100M-M	
C5K14	181P352030	C-ELEC - 16V 47M-M	
C6B02	181P195040	C-ELEC - 350V 4.7M-M/Q	
C6B04	181P352030	C-ELEC - 16V 47M-M	
C6B23	181P352030	C-ELEC - 16V 47M-M	
C6G02	181P195040	C-ELEC - 350V 4.7M-M/Q	
C6G04	181P352030	C-ELEC - 16V 47M-M	
C6G23	181P352030	C-ELEC - 16V 47M-M	
C6M03	181P352030	C-ELEC - 16V 47M-M	
C6M24	181P352030	C-ELEC - 16V 47M-M	
C6M48	181P352040	C-ELEC - 16V 100M-M	
C6P03	181P352030	C-ELEC - 16V 47M-M	
C6P24	181P352030	C-ELEC - 16V 47M-M	
C6R02	181P195040	C-ELEC - 350V 4.7M-M/Q	
C6R04	181P352030	C-ELEC - 16V 47M-M	
C6R23	181P352030	C-ELEC - 16V 47M-M	
C7B41	181P352030	C-ELEC - 16V 47M-M	
C7B77	181P352030	C-ELEC - 16V 47M-M	
C7C02	181P352030	C-ELEC - 16V 47M-M	
C7C12	181P352030	C-ELEC - 16V 47M-M	
C7C14	181P352030	C-ELEC - 16V 47M-M	
C7C18	181P352030	C-ELEC - 16V 47M-M	
C7C26	181P352030	C-ELEC - 16V 47M-M	
C7C29	181P352040	C-ELEC - 16V 100M-M	
C7C30	181P350010	C-ELEC - 16V 4700M-M	
C7C40	181P352030	C-ELEC - 16V 47M-M	
C7C91	181P352030	C-ELEC - 16V 47M-M	
C7C94	181P352030	C-ELEC - 16V 47M-M	
C7K01	181P352030	C-ELEC - 16V 47M-M	
C7L22	172P262050	C-M-POLY - 50V 0.1M-J	
C8A06	181P352030	C-ELEC - 16V 47M-M	
C8A39	181P352030	C-ELEC - 16V 47M-M	
C8A43	172P262050	C-M-POLY - 50V 0.1M-J	
C8A46	181P352030	C-ELEC - 16V 47M-M	
C8A48	181P352030	C-ELEC - 16V 47M-M	
C8C03	181P358000	C-ELEC - 35V 1000M-M	
C8C05	181P358000	C-ELEC - 35V 1000M-M	
C8C18	181P358000	C-ELEC - 35V 1000M-M	
C8C20	181P358000	C-ELEC - 35V 1000M-M	
C8C43	142P020080	C-CER - B50V 820P-K	
C8C44	142P020080	C-CER - B50V 820P-K	
C8C45	142P020080	C-CER - B50V 820P-K	
C8C46	142P020080	C-CER - B50V 820P-K	
C8C47	142P020080	C-CER - B50V 820P-K	
C8C48	142P020080	C-CER - B50V 820P-K	
C8D25	181P352030	C-ELEC - 16V 47M-M	
C8D32	181P352030	C-ELEC - 16V 47M-M	
C8D34	181P352030	C-ELEC - 16V 47M-M	
C9A05	**189P185070**	**C-CER - 250VAC 1000P-M**	
C9A06	**189P185070**	**C-CER - 250VAC 1000P-M**	
C9A07	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
C9A08	**189P185090**	**C-CER - 250VAC 2200P-M**	
C9A09	**189P185090**	**C-CER - 250VAC 2200P-M**	
C9A10	**189P185090**	**C-CER - 250VAC 2200P-M**	
C9A11	**189P185090**	**C-CER - 250VAC 2200P-M**	
C9A12	185D122050	C-ELEC - H200V 1000M-M 105C	
C9A13	**189P152070**	**C-M-POLY - 250VAC 0.01M-M**	
C9A14	**189P152070**	**C-M-POLY - 250VAC 0.01M-M**	
C9A20	189P152070	C-M-POLY - 250VAC 0.01M-M	
C9A24	142P020050	C-CER - B50V 470P-K	
C9A33	181P352070	C-ELEC - 16V 470M-M	
C9A35	181P352040	C-ELEC - 16V 100M-M	
C9A40	181P352080	C-ELEC - 16V 1000M-M	

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

Ref #	Part #	Part Name & Description	[#]
C9A42	181P352040	C-ELEC - 16V 100M-M	
C9A50	**142P020050**	**C-CER - B50V 470P-K**	
C9A53	185D122050	C-ELEC - H200V 1000M-M 105C	
C9A54	154P260080	C-CER - R1KV 3300P-K	
C9A55	142P020070	C-CER - B50V 680P-K	
C9A58	185D163020	C-ELEC - H50V 4700M-M 105C	
C9A62	181P195080	C-ELEC - 350V 47M-M/Q	
C9A63	185D121020	C-ELEC - H180V 470M-M 105C	
C9A69	181P358030	C-ELEC - 35V 4700M-M	
C9A73	181P358030	C-ELEC - 35V 4700M-M	
C9C01	181P352030	C-ELEC - 16V 47M-M	
C9C02	181P352030	C-ELEC - 16V 47M-M	
C9C04	181P352030	C-ELEC - 16V 47M-M	
C9C05	181P352030	C-ELEC - 16V 47M-M	
C9C10	181P352030	C-ELEC - 16V 47M-M	
C9C20	181P352030	C-ELEC - 16V 47M-M	
C9D00	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
C9D01	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	

SWITCHES

S7L21	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L22	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L23	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L24	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L25	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L26	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L27	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L28	432P089010	SW-KEY-BOARD - PUSH-ON	
S7L29	432P089010	SW-KEY-BOARD - PUSH-ON	

MISCELLANEOUS

	246C351030	AC-POWER-CORD	
	305P702020	RF-SW - YAA41-0126G	
	330P276010	**DEFL-YOKE**	**3&4**
	330P276020	**DEFL-YOKE**	**125**
	338P046030	SVM COIL:G&B	
	338P046080	SVM COIL:RED	135
	338P051010	SVM COIL:GREEN	2&4
	338P051020	SVM COIL:RED	2&4
	411D033010	CORE-FERRITE	
	411D044010	CORE-FERRITE	
	449C141030	**SOCKET-CRT**	
	453B035010	**CAP-ANODE - SHORT - RED**	
	453B035020	**CAP-ANODE - LONG - G&B**	
	453C021030	**LEAD-ANODE - FBT-HV**	
	480P053010	SPEAKER	135
	480P063010	SPEAKER	2&4
	490P154010	LENS - RED/BLUE	5
	490P154020	LENS - GREEN	5
	490P174070	LENS - RED	3&4
	490P174080	LENS - GREEN	3&4
	490P174090	LENS - BLUE	3&4
	490P220010	LENS - ALL COLORS	1&2
	589C062010	CASTER	1-4
	597D843010	STIFFENER-MIRROR - 3/4"X3/4" TUBING	3&4
	622B009010	TRAY, COOLANT - PS 94V-0	
	622C065010	CLIP-MIRROR	5
	622C076010	BRACKET-SVM	
	642C340010	BOARD-MIRROR	3&4
	642C352010	CLIP-MIRROR	1&2
	669D514070	SCREW-MIRROR BOARD	3&4
	750A356010	COVER-BACK - 46"	5
	762B345020	BACK-BOARD	5
	762B354010	BACK BOARD	3&4
	762B354020	BACK BOARD	1&2
	767D048090	MIRROR - 65"	3&4
	767D055040	MIRROR - 55"	1&2
	767D055070	MIRROR - 46"	5
	920P016010	**HV-BLOCK - MSC102**	
AG5K00	224D019040	AIR-GAP - 2.0+-0.5KV S.LEAD	
CF6M01	299P128010	CERAMIC-OSC - CSB500F2	
CF6P01	299P128010	CERAMIC-OSC - CSB500F2	
F5A00	**283P043060**	**FUSE - LF251 3A**	
F5A01	**283P043060**	**FUSE - LF251 3A**	
F9A01	**283P044010**	**FUSE - LF251 7A**	
F9A02	**283P044020**	**FUSE - LF251 10A**	
F9A03	**283P043090**	**FUSE - LF251 5A**	
F9A04	**283P043090**	**FUSE - LF251 5A**	
F9A05	**283P043090**	**FUSE - LF251 5A**	
F9A06	**283P044010**	**FUSE - LF251 7A**	
F9D00	**283D131040**	**FUSE - S10A 125A**	
K9A50	**287P049080**	**RELAY-POWER - DG12D1-0(M)**	
PC9A20	**268P058020**	**PHOTO-COUPLER - ON3131-R/ON3161-R**	
PC9A50	**268P058020**	**PHOTO-COUPLER - ON3131-R/ON3161-R**	
PC9A51	268P058020	PHOTO-COUPLER - ON3131-R/ON3161-R	
PJ2J01	440C386010	PIN-JACK-BOARD	
PJ2J02	440C386020	PIN-JACK-BOARD-6P-1S	
PJ2J07	440C385010	PIN-JACK-BOARD-6P	
PJ2J08	440C261070	PIN-JACK-BOARD-2P	
PJ2J09	440C261050	PIN-JACK-BOARD-2P	
PJ2J10	440C385020	PIN-JACK-BOARD-6P	
PJ2J11	440C231010	JACK-3PIN - FRONT A/V INPUT	
PJ2J11	440C261050	PIN-JACK-BOARD-2P	
PJ2J12	440C261050	PIN-JACK-BOARD-2P	
PJ7A00	451C129010	JACK-MINI - AV NET/IR BLAST	
PJ7A02	451C129010	JACK-MINI - AV NET/IR BLAST	
PT7A00	264P723010	D-LED - SFH310-3	
TU1A01	**295P500010**	**TUNER-RF - ENG26515G**	
TU1B01	**295P500010**	**TUNER-RF - ENG26515G**	
X2031	285P374050	QUARTS-CRYST - 20.000MHZ	
X3A01	299P208010	CERAMIC-OSC - C5B503F58	
X6C26	285P374020	QUARTZ-CRYST - 3.579545MHZ	
X6P26	285P374020	QUARTZ-CRYST - 3.579545MHZ	
X7A01	285P029030	QUARTZ-CRYST - 4.000000MHZ	
X7H00	285P335040	QUARTZ-CRYST - 60.000MHZ	
X7H01	285P335050	QUARTZ-CRYST - 80.000MHZ	
Z7K01	939P617010	UNIT-PREAMP - GP1U283Q	

PRINTED CIRCUIT BOARD

	930B866005	ASSY-PWB-MAIN	5
	930B866006	ASSY-PWB-MAIN	1&2
	930B866007	ASSY-PWB-MAIN	3&4
	930B867003	ASSY-PWB-POWER	
	930B881001	ASSY-PWB-SIGNAL	
	935C907003	ASSY-PWB-CRT	
	935C957001	ASSY-PWB-TERMINAL	
	935C966001	ASSY-PWB-2HDW	
	935D519003	ASSY-PWB-PREAMP	

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

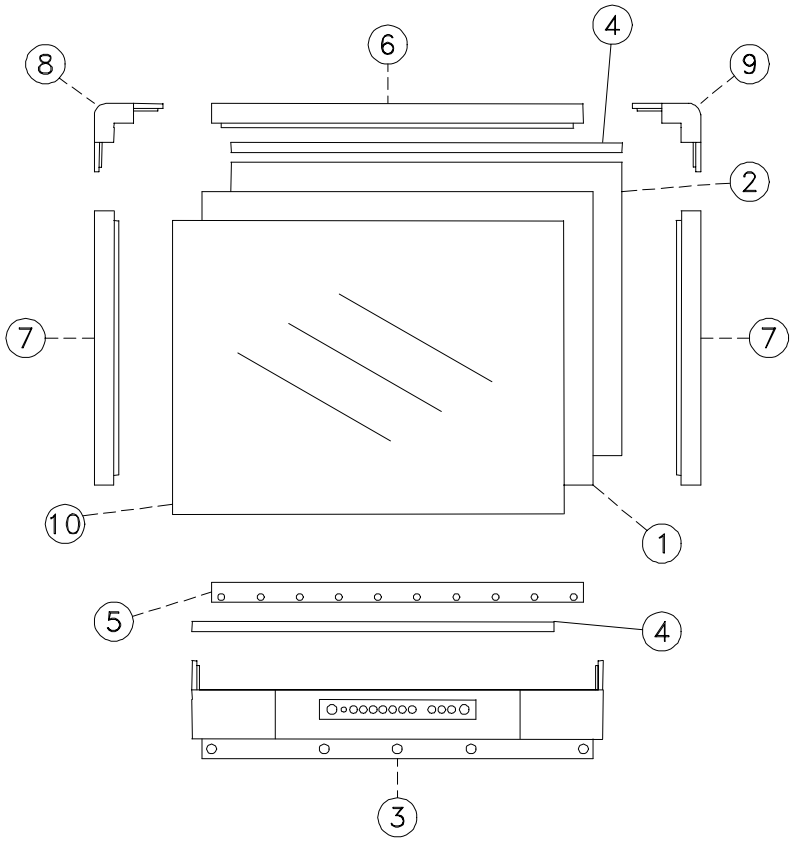
Ref #	Part #	Part Name & Description	[#]
	935D520003	ASSY-PWB-SVM	
	935D521004	ASSY-PWB-DBF	
	935D524002	ASSY-PWB-CONTROL 2	
	935D525003	ASSY-PWB-FRONT	
	935D600001	ASSY-PWB-JUNGLE	
	935D601001	ASSY-PWB-CONV-GENE	
	935D602001	ASSY-PWB-3DYC/MD	
		COSMETIC PARTS	
	702A391020	PANEL-CONTROL	1
	702A392010	PANEL-TERMINAL	
	702A393020	PANEL-CONTROL	3
	702A397010	PANEL-CONTROL	5
	702A398010	PANEL-CONTROL	2&4
	703B031020	DOOR - FRONT A/V IN COVER	1&3
	703B032010	DOOR	5

Ref #	Part #	Part Name & Description	[#]
	761A159040	GRILLE-SP - 55"	1
	761A171010	GRILLE-SP - 65"	3
	761A172020	GRILLE-SP	2
	761A173020	GRILLE-SP	4
	761A185010	GRILLE-SP	5
		ACCESSORIES	
	290P103010	REMOTE CONTROL	
	I/B WT46809	IB - OWNERS GUIDE	

[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809

SCREEN ASSEMBLY PARTS

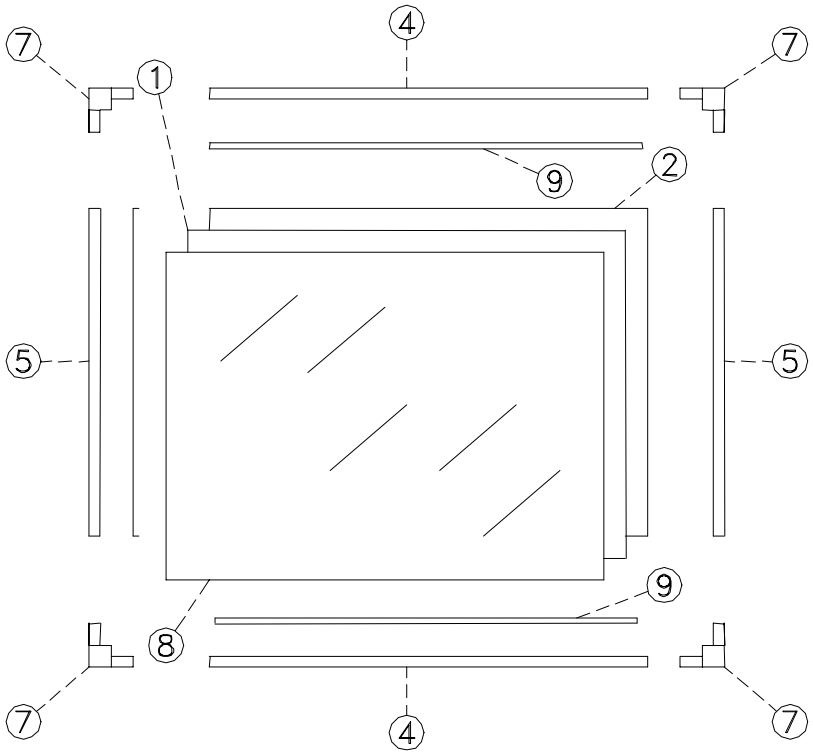
Ref #	Part #	Part Name & Description
WT-46809 ***(Figure 1)***		
(1)	491P118020	SCREEN-LENTICULAR
(2)	491P119020	LENS-FRESNEL
(3)	702A397010	PANEL-CONTROL
(4)	622C071030	CLIP, DIAMOND SHIELD
(5)	622C063020	HOLDER-SCREEN-BOT
(6)	701B429050	SCREEN-FRAME-TOP
(7)	701B430030	SCREEN-FRAME-SIDE
(8) (9)	702A396020	CORNER CAP
(10)	760D628050	DIAMOND SHIELD
WS-55809 ***(Figure 1)***		
(1)	491P125010	SCREEN-LENTICULAR
(2)	491P126010	LENS-FRESNEL
(3)	702A391020	PANEL-CONTROL
(4)	622C060040	CLIP-SCREEN-TOP/BOT
(5)	622C063040	HOLDER-SCREEN-BOT
(6)	701B400080	FRAME-SCREEN-TOP
(7)	701B417010	FRAME-SCREEN-SIDE
(8)	702A388030	CAP-CORNER-LEFT
(9)	702A388040	CAP-CORNER-RIGHT
(10)	760D627060	DIAMOND SHIELD
WS-55819 ***(Figure 2)***		
(1)	491P125010	SCREEN-LENTICULAR
(2)	491P126010	LENS-FRESNEL
(9)	622C071010	CLIP-SCREEN-TOP/BOT
(4)	701B429010	SCREEN-FRAME-TOP/BOTTOM
(5)	701B430010	SCREEN-FRAME - SIDE
(7)	702A396010	CAP-CORNER
(8)	760D627060	DIAMOND SHIELD
WS-65809 ***(Figure 1)***		
(1)	491P105020	SCREEN LENTICULAR
(2)	491P106020	LENS-FRESNEL
(3)	702A393020	PANEL-CONTROL
(4)	622C060050	CLIP-SCREEN-TOP/BOT
(5)	622C059050	HOLDER-SCREEN-BOT
(6)	701B425010	FRAME-SCREEN-TOP
(7)	701B426030	FRAME-SCREEN-SIDE
(8)	702A388030	CAP-CORNER-LEFT
(9)	702A388040	CAP-CORNER-RIGHT
(10)	760D627080	DIAMOND SHIELD
WS-65819 ***(Figure 2)***		
(1)	491P105010	SCREEN-LENTICULAR
(2)	491P106010	LENS-FRESNEL
(9)	622C071020	CLIP-SCREEN-TOP/BOT
(4)	701B429020	SCREEN-FRAME-TOP/BOTTOM
(5)	701B430020	SCREEN-FRAME - SIDE
(7)	702A396010	CAP-CORNER
(8)	760D627070	DIAMOND SHIELD



WT-46809
WS-55809
WS-65809

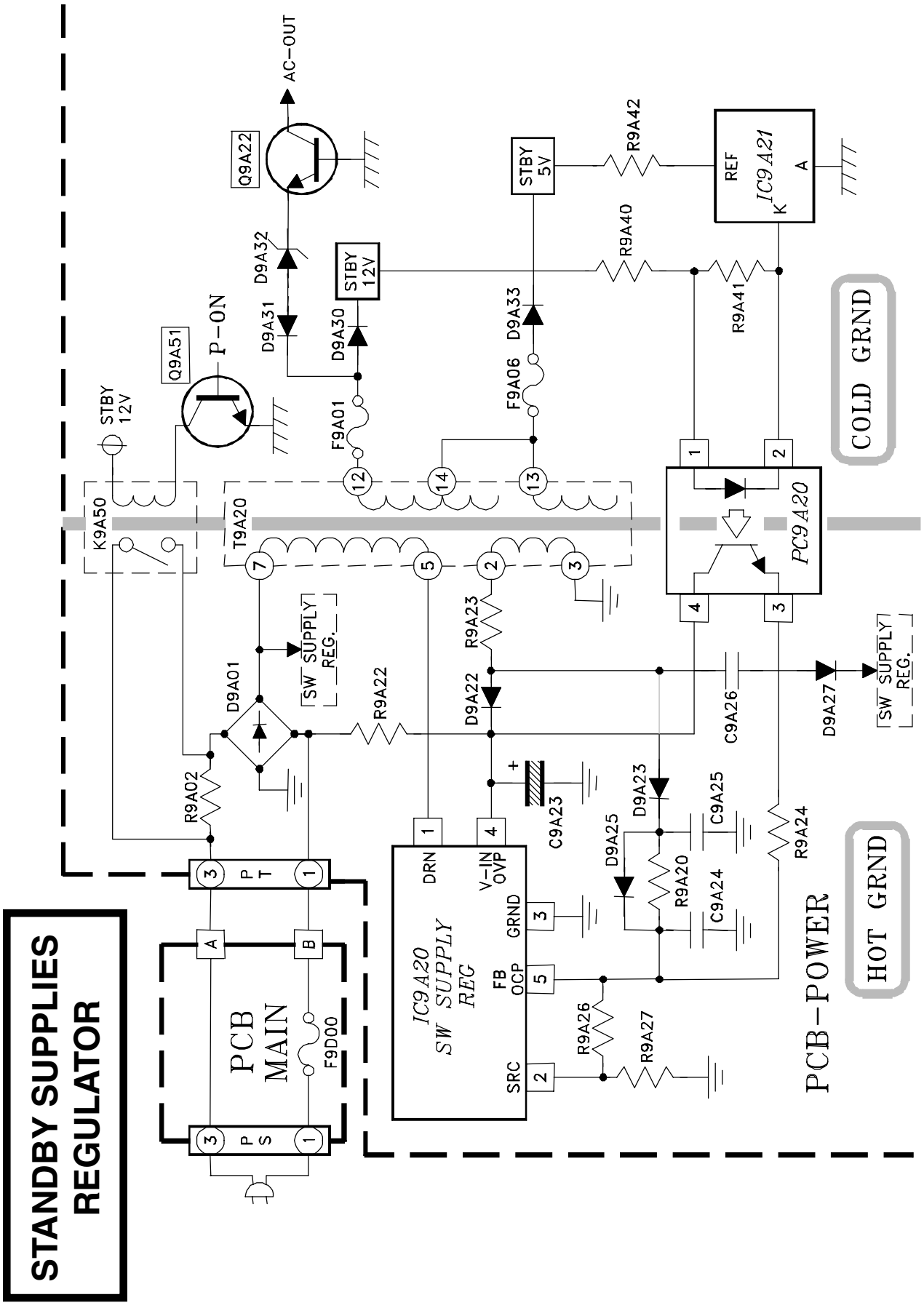
Figure 1: Screen Assembly Parts

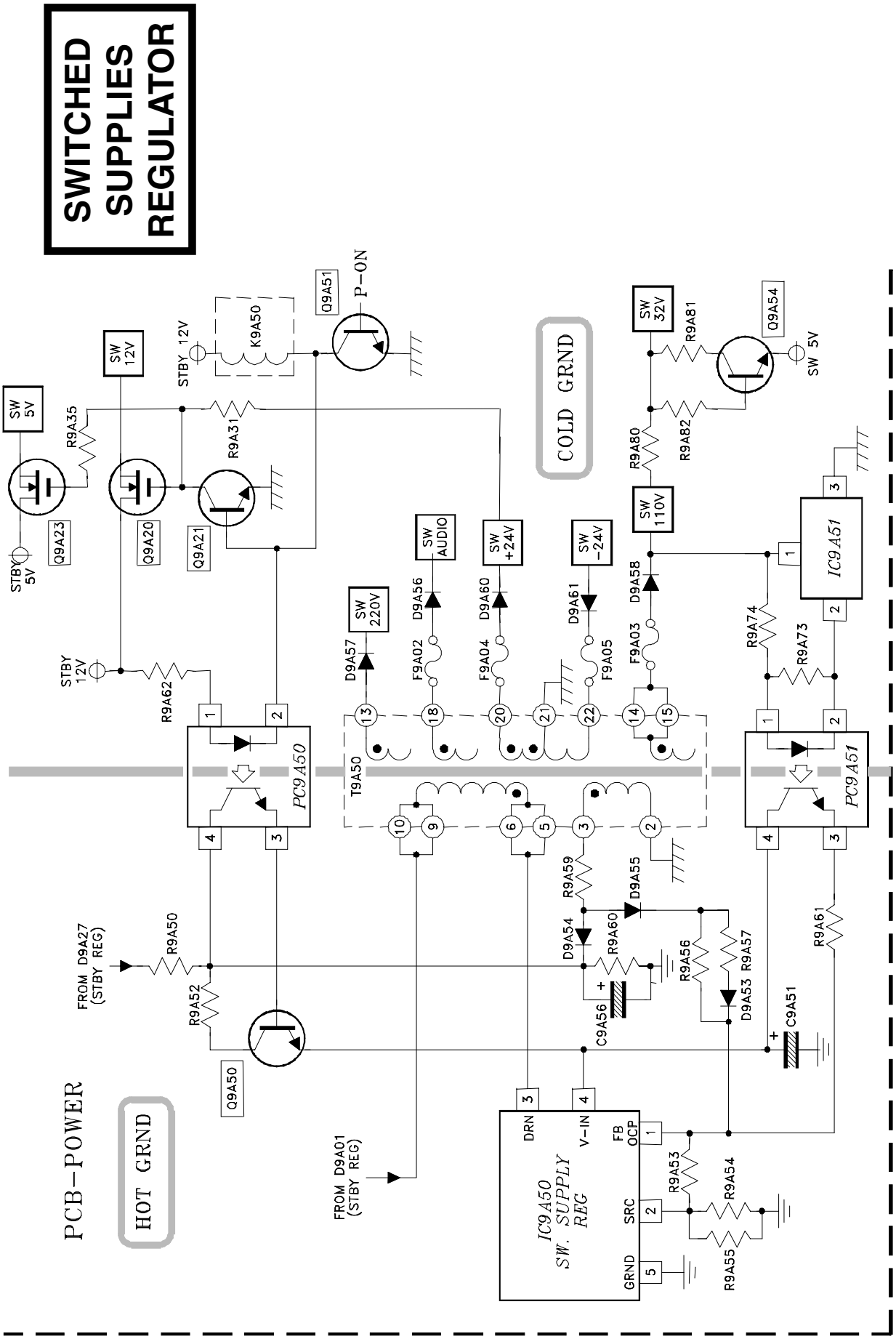
[#] Model Legend: (1) WS-55809, (2) WS-55819, (3) WS-65809, (4) WS-65819, (5) WT-46809



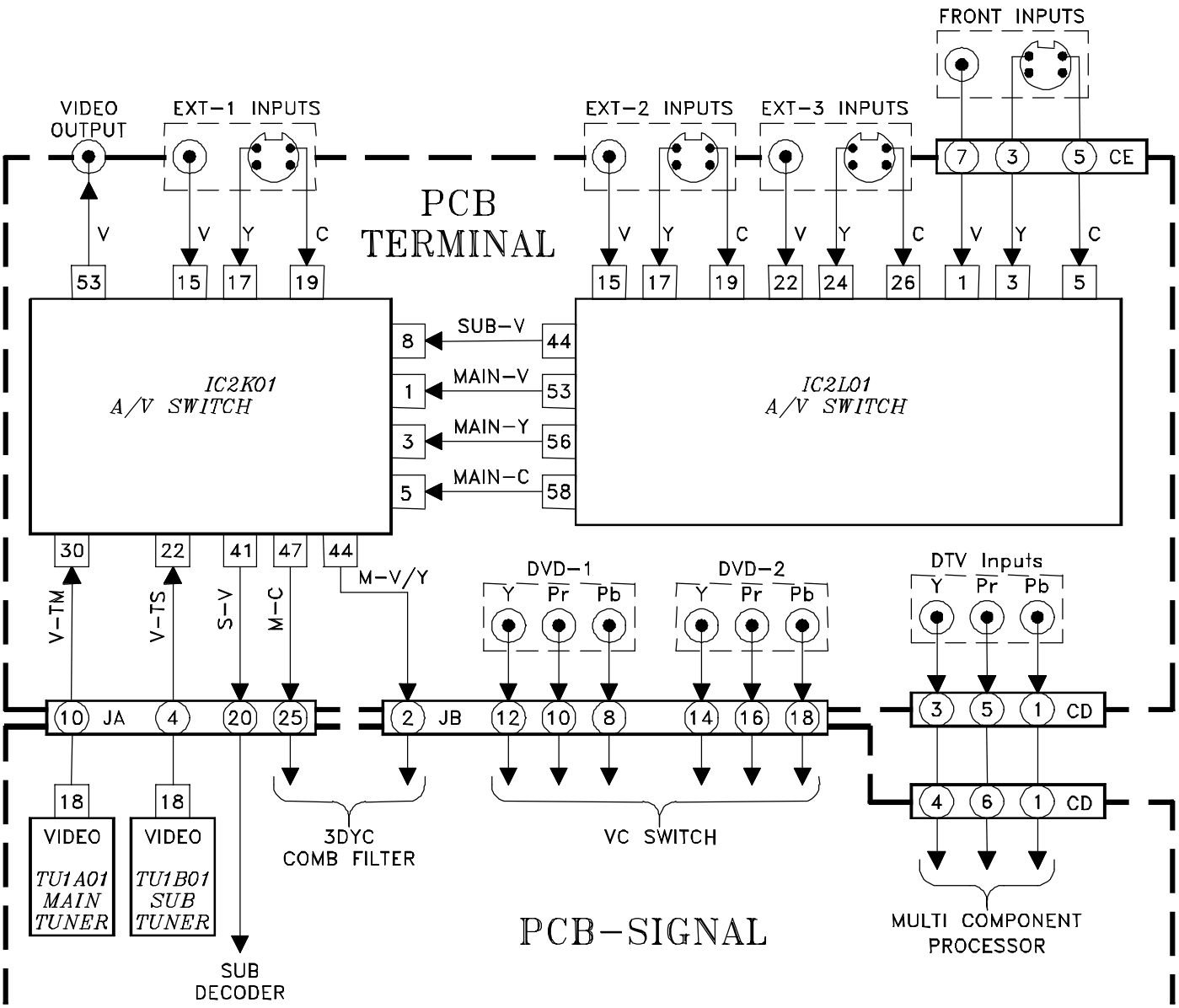
WS-55819
WS-65819

Figure 2: Screen Assembly Parts

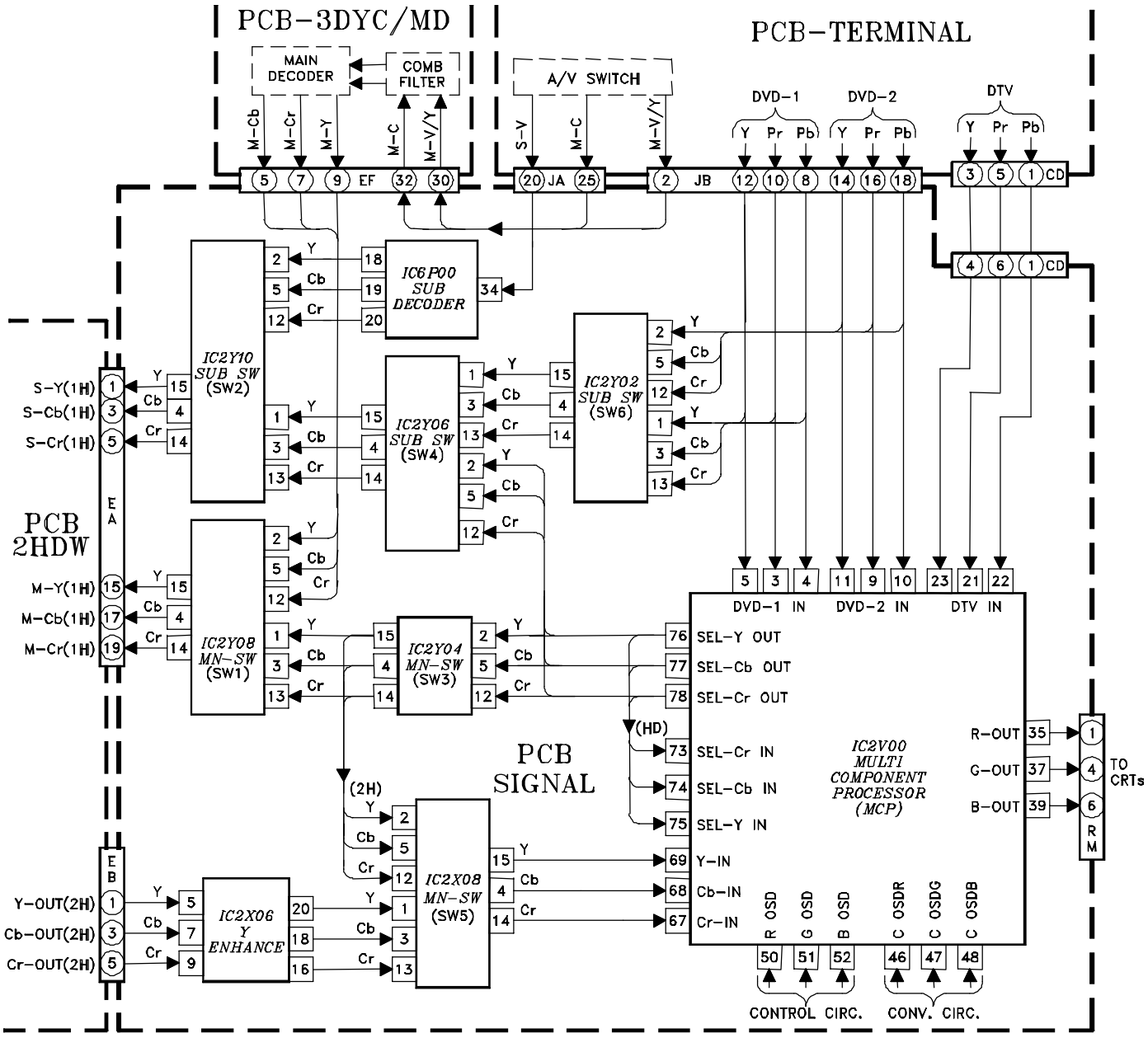

STANDBY SUPPLIES REGULATOR
PCB MAIN
F9D00
P S
P T
IC9A20 SW SUPPLY REG
DRN
V-IN OVP
GRND
FB OCP
SRC
PCB-POWER
HOT GRND
COLD GRND
PC9A20
IC9A21
REF
K
A
K9A50
T9A20
Q9A51
P-ON
Q9A22
AC-OUT
STBY 12V
STBY 5V
D9A01
D9A02
D9A22
D9A23
D9A25
D9A27
D9A30
D9A31
D9A32
D9A33
F9A01
F9A06
R9A02
R9A20
R9A22
R9A23
R9A24
R9A26
R9A27
R9A40
R9A41
R9A42
C9A23
C9A24
C9A25
C9A26
SW SUPPLY REG.


SWITCHED SUPPLIES REGULATOR
PCB-POWER
HOT GRND
COLD GRND
P-ON
Q9A51
K9A50
STBY 12V
SW 12V
SW 5V
SW 32V
SW 110V
SW 220V
SW AUDIO
SW +24V
SW -24V
SW 5V
STBY 5V
Q9A23
Q9A20
Q9A21
Q9A54
R9A35
R9A31
R9A81
R9A80
R9A82
R9A62
D9A56
D9A57
D9A60
D9A61
D9A58
F9A02
F9A04
F9A05
F9A03
R9A74
R9A73
T9A50
PC9A50
PC9A51
IC9A51
R9A59
D9A55
D9A54
R9A60
R9A56
R9A57
D9A53
C9A56
C9A51
R9A61
FROM D9A27 (STBY REG)
R9A50
R9A52
Q9A50
FROM D9A01 (STBY REG)
IC9A50
SW. SUPPLY REG
DRN
V-IN
FB
OCP
SRC
GRND
R9A53
R9A54
R9A55

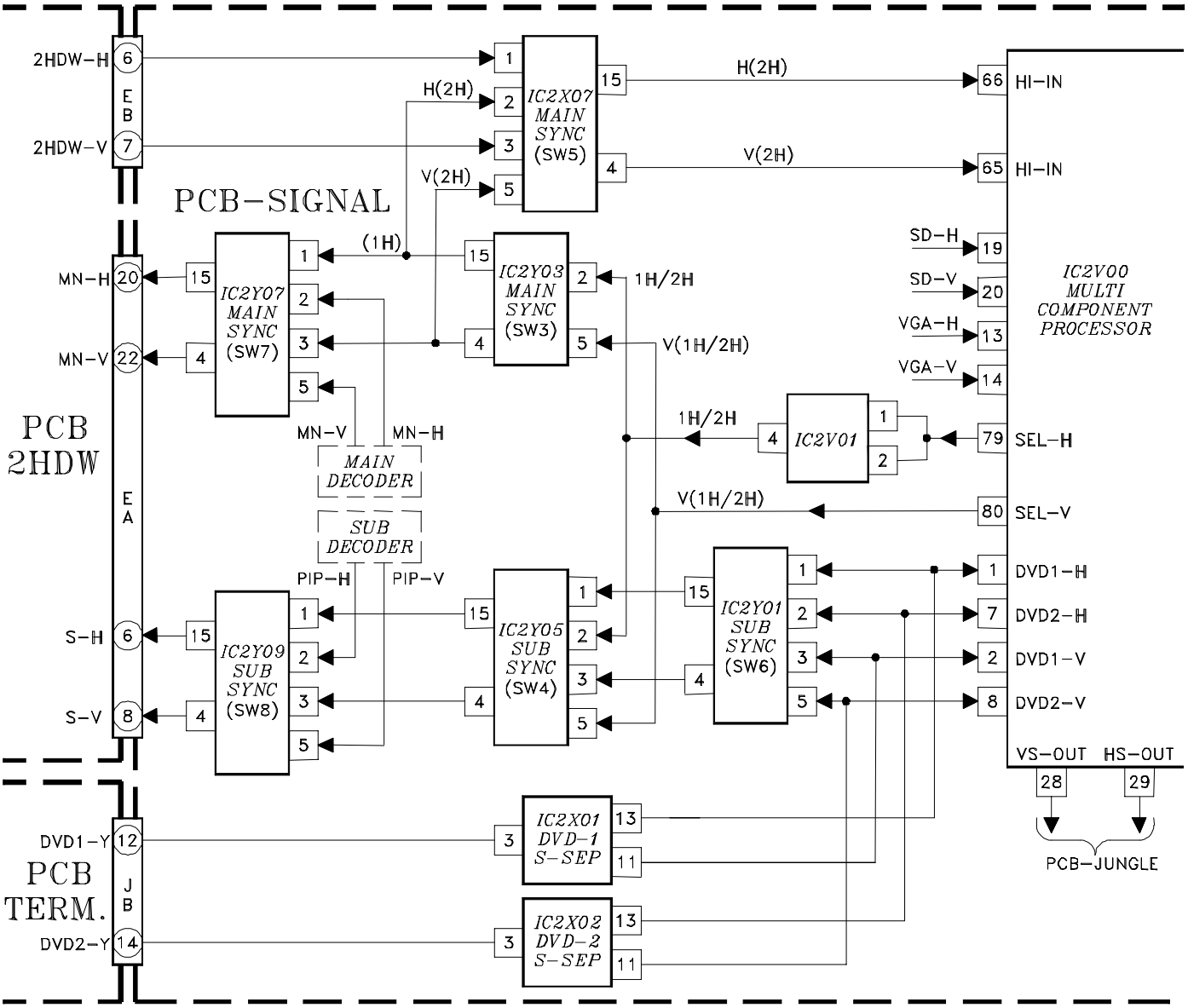
VIDEO/COLOR A/V SWITCH CIRCUIT



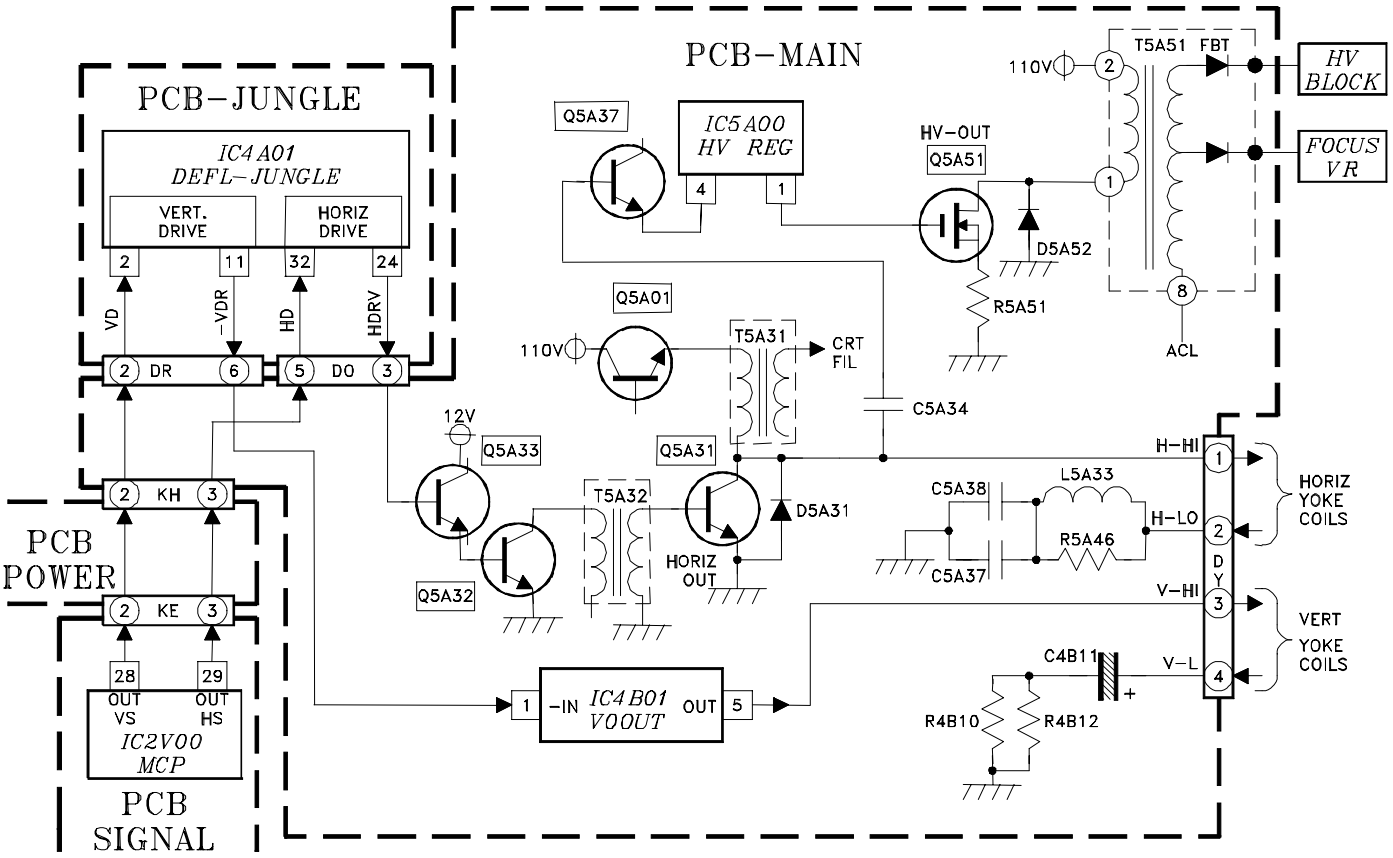
PCB-SIGNAL Y/C PATH

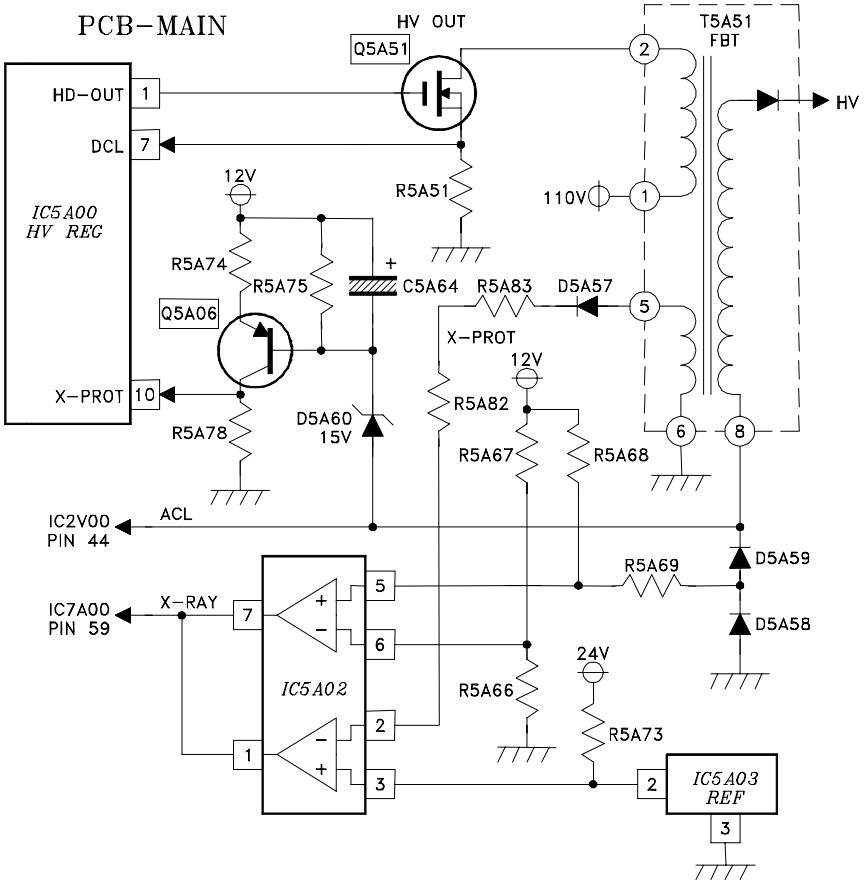


SYNC PATH


PCB-SIGNAL
PCB 2HDW
PCB TERM.
2HDW-H
2HDW-V
MN-H
MN-V
S-H
S-V
DVD1-Y
DVD2-Y
IC2X07 MAIN SYNC (SW5)
IC2Y07 MAIN SYNC (SW7)
IC2Y03 MAIN SYNC (SW3)
IC2Y09 SUB SYNC (SW8)
IC2Y05 SUB SYNC (SW4)
IC2Y01 SUB SYNC (SW6)
IC2V01
IC2X01 DVD-1 S-SEP
IC2X02 DVD-2 S-SEP
MAIN DECODER
SUB DECODER
H(2H)
V(2H)
(1H)
1H/2H
V(1H/2H)
MN-V
MN-H
PIP-H
PIP-V
IC2V00 MULTI COMPONENT PROCESSOR
HI-IN
HI-IN
SD-H
SD-V
VGA-H
VGA-V
SEL-H
SEL-V
DVD1-H
DVD2-H
DVD1-V
DVD2-V
VS-OUT
HS-OUT
PCB-JUNGLE

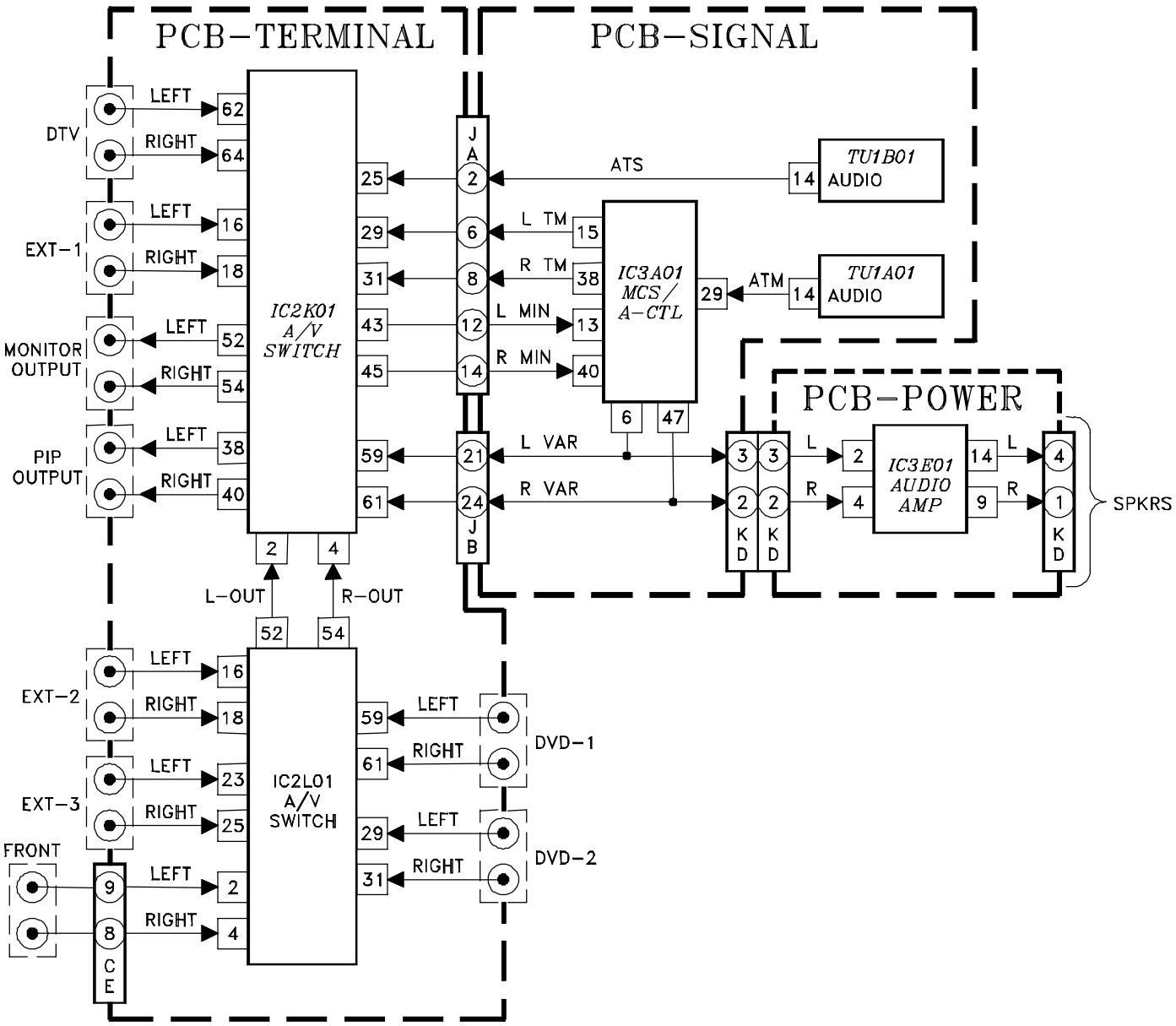
DEFLECTION CIRCUIT

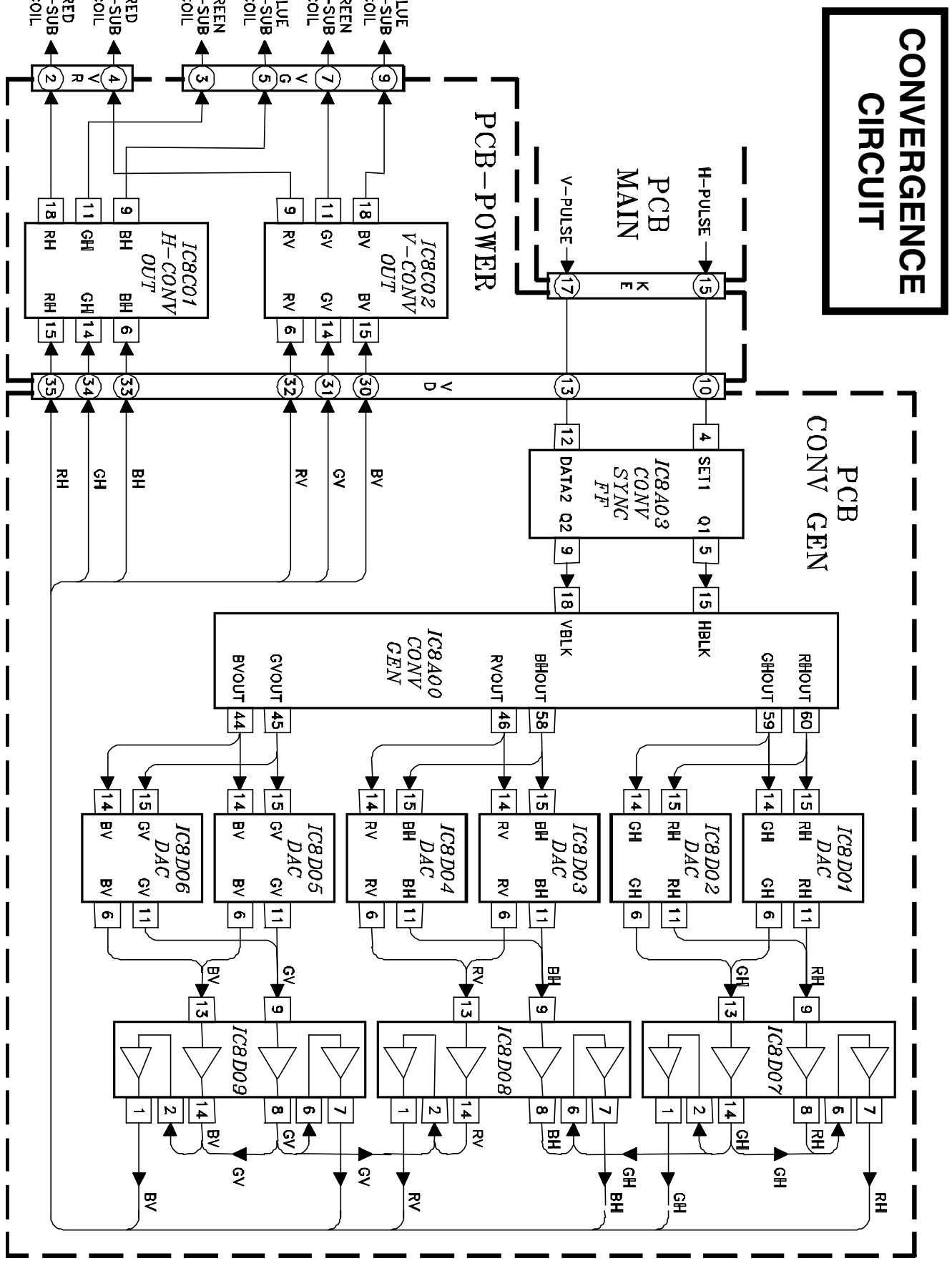




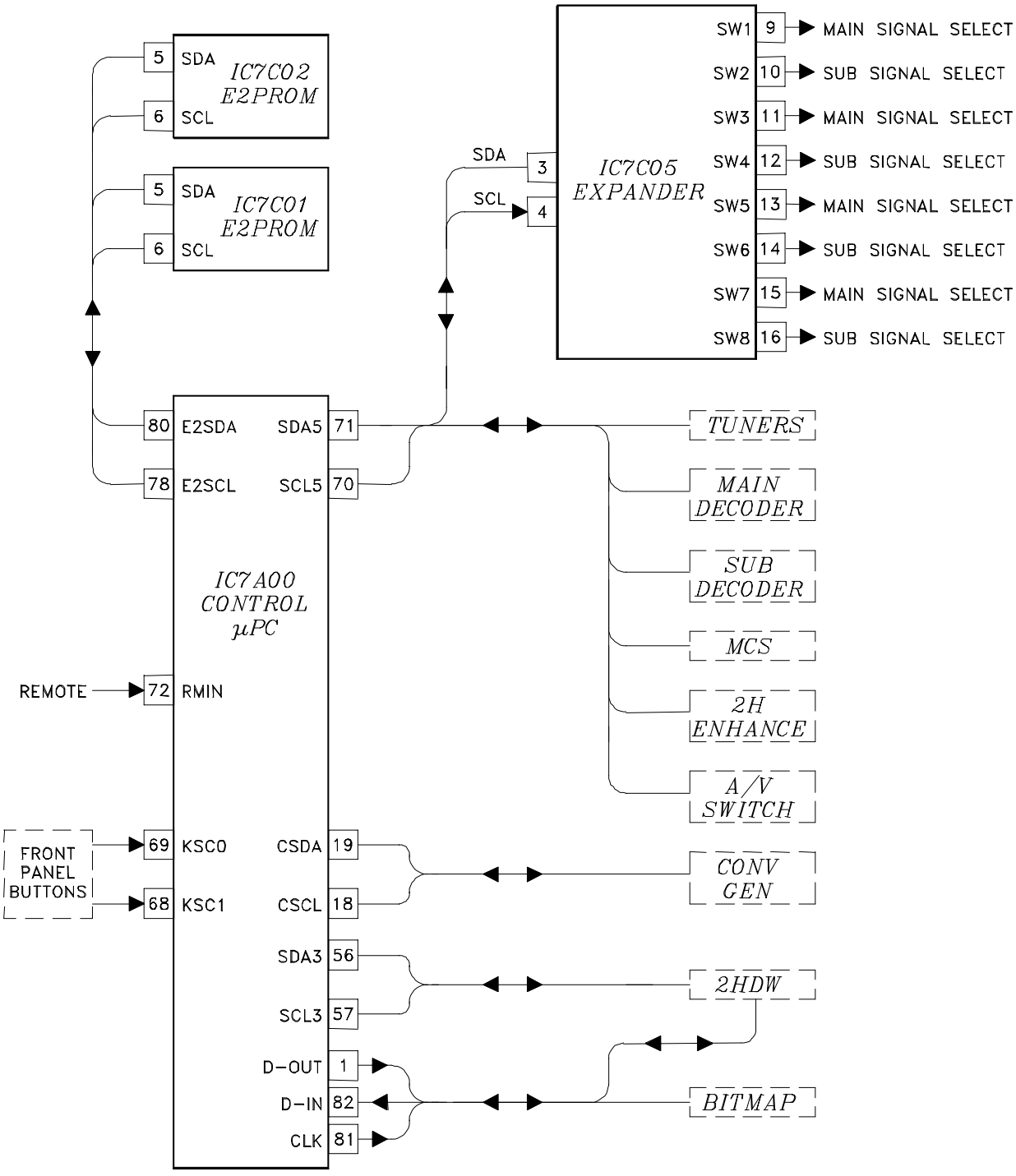
X-RAY PROTECT

SOUND CIRCUIT




CONVERGENCE CIRCUIT
PCB MAIN
PCB-POWER
PCB CONV GEN
H-PULSE
V-PULSE
IC8C01 H-CONV OUT
IC8C02 V-CONV OUT
IC8A03 CONV SYNC FF
IC8A00 CONV GEN
IC8D01 DAC
IC8D02 DAC
IC8D03 DAC
IC8D04 DAC
IC8D05 DAC
IC8D06 DAC
IC8D07
IC8D08
IC8D09
BLUE V-SUB COIL
GREEN V-SUB COIL
BLUE H-SUB COIL
GREEN H-SUB COIL
RED V-SUB COIL
RED H-SUB COIL
RH
GH
BH
RV
GV
BV
VBLK
HBLK
RHOUT
GHOUT
BHOUT
RVOUT
GVOUT
BVOUT

CONTROL CIRCUIT

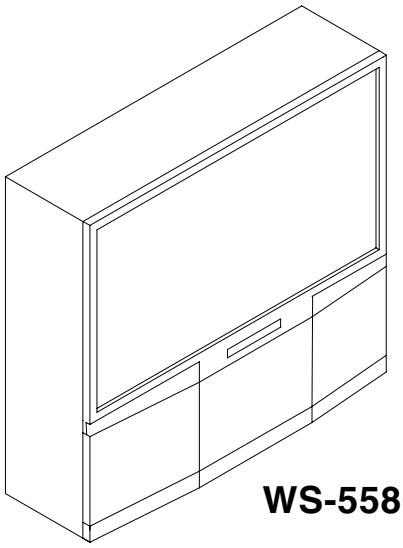


2001

MITSUBISHI ELECTRIC

Service Manual

PROJECTION TELEVISION
V18 / V18+ CHASSIS



WS-55809

V18 MODELS	V18+ MODELS
WT-46809	WS-55819
WS-55809	WS-65819
WS-65809	

CAUTION:
Before servicing this chassis, it is important that the service person read the "SAFETY PRECAUTIONS" and "PRODUCT SAFETY NOTICE" contained in this manual.

PART 2
SCHEMATIC DIAGRAMS

CONTENTS **Page**

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PCB-POWER 3
PCB-TERMINAL 4
PCB-SIGNAL-1 (AV I/O) 5
PCB-SIGNAL-2 (MICRO) 6
PCB-SIGNAL-3 (VC/SW) 7
PCB-3DYC 8
PCBs-CONV GEN / JUNGLE 9
PCBs-CRT / CONTROL / AI / SVM / DBF 10
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PCB-2HDW-2 12
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Refer to PART 1 for:

- Specifications
- Safety Precautions
- Disassembly
- CRT Replacement
- Electrical Adjustments
- Parts List
- Block Diagrams

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9351 Jeronimo Road, Irvine, CA 92618-1904

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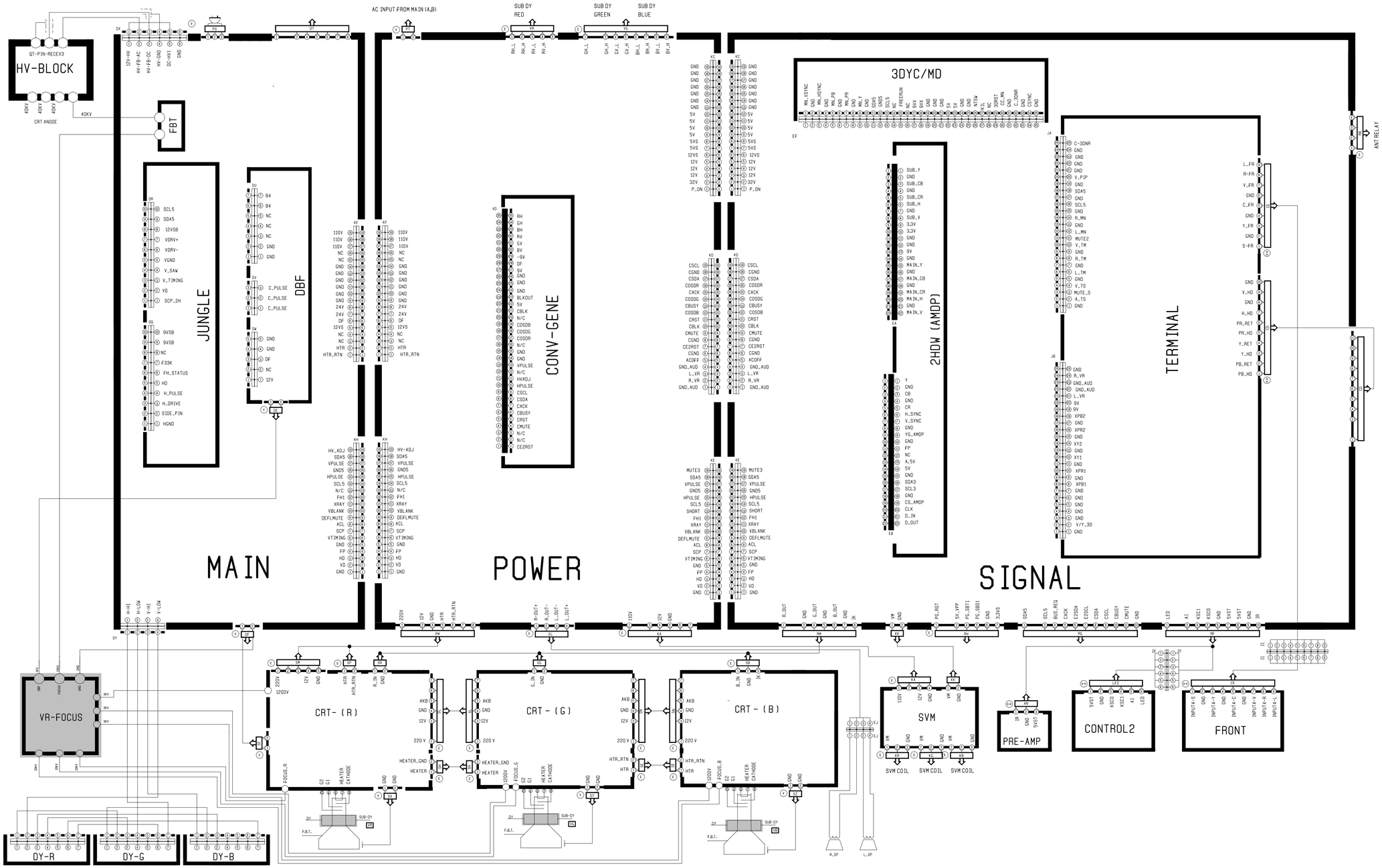

× NOTES

1. DC voltages were measured from points indicated to the circuit ground with a high-Z voltmeter.
2. Waveforms were taken with standard color bar signal
3. TP13,etc. show Test Points
4. CAPACITORS

Value	Not indicated	[PF, for numbers more than 1 μF, for numbers less than 1]	
Dielectric Strength	Not indicated : 50V		
Tolerance	Not indicated = ±10%	[No tolerance is indicated for electrolytic capacitors and ±20%]	
	G = ±2%	P = +100%	Q = +30%	C = ±0.25PF
	J = ±5%	-0%	-10%	D = ±0.5PF
	K = ±10%	Z = +80%	T = +200%	F = ±1PF
	M = ±20%	-20%	-0%	G = ±2PF
Type I Parts except for chips	Not indicated	: Ceramic capacitor		
	(MF)	: Polyester capacitor		
	(PP)	: Polypropylene film capacitor		
	(ALM)	: Aluminus electrolytic capacitor		
	(TF)	: Twin film capacitor		
	(SC)	: Semiconductor Ceramic capacitor		
	(MP)	: Metalized paper		
	(MPP)	: Metalized plastic film capacitor		
	(MMF)	: Metalized polyester capacitor		
	(MF_PP)	: Polyester polypropylene film capacitor		
	(PS)	: Styrol capacitor		
	(TAN) or (TANT)	: Tantalum capacitor		
		: Electrolytic capacitor		
	(NP)	: Non polarized electrolytic capacitor		
Type II Chips	Not indicated	: Ceramic capacitor chip		
		: Electrolytic capacitor		
	(NP)	: Non polarized electrolytic capacitor chip		
Characteristic (only ceramic capacitor)	Not indicated	: F or B (high dielectric percentage)		
	CH,SL,etc.	: Temperature compensating types		

5. RESISTORS

Value	Not indicated = Ohm K = 1,000 Ohm M = 1,000,000 Ohm		
Wattage	Parts except for chips	Not indicated = 1/4W or 1/6W	
	Chips	Not indicated = 1/10W	
Tolerance	Not indicated = ±5% D = ±0.5% J = ±5% F = ±1% K = ±10%		
Type I Parts except for chips	Not indicated	: Carbon resistor	
	(S)	: Fixed composition resistor	
	(RD)	: Metal oxide film resistor (type B)	
	(CE)	: Cemented resistor	
	(W)	: Wire wound resistor	
	(M)	: Metal film resistor	
	(MPC)	: Metal plate cement resistor	
	(ML)	: Metal liner resistor	
Type II Chip	Not indicated	: Chip resistor	

6. This is a basic schematic diagram.Some sets may be subject to modification according to engineering improvement.

SHADED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS READ CAREFULLY THE PRODUCT SAFETY NOTICE IN THE SERVICE MANUAL. DON'T DEGRADE THE SAFETY OF THE RECEIVERS THROUGH IMPROPER SERVICING.

SERVICE TECHNICIAN WARNING:
X-RADIATION PRECAUTION
THIS PRODUCT INCLUDES CRITICAL ELECTRICAL AND MECHANICAL PARTS ESSENTIAL FOR X-RADIATION PROTECTION.
TO AVOID POSSIBLE EXPOSURE TO X-RADIATION TAKE X-RADIATION PROTECTIVE MEASURES FOR PERSONNEL DURING SERVICING.
SEE SERVICE INSTRUCTIONS FOR SPECIFIED REPLACEMENT PARTS AND SERVICE ADJUSTMENTS.

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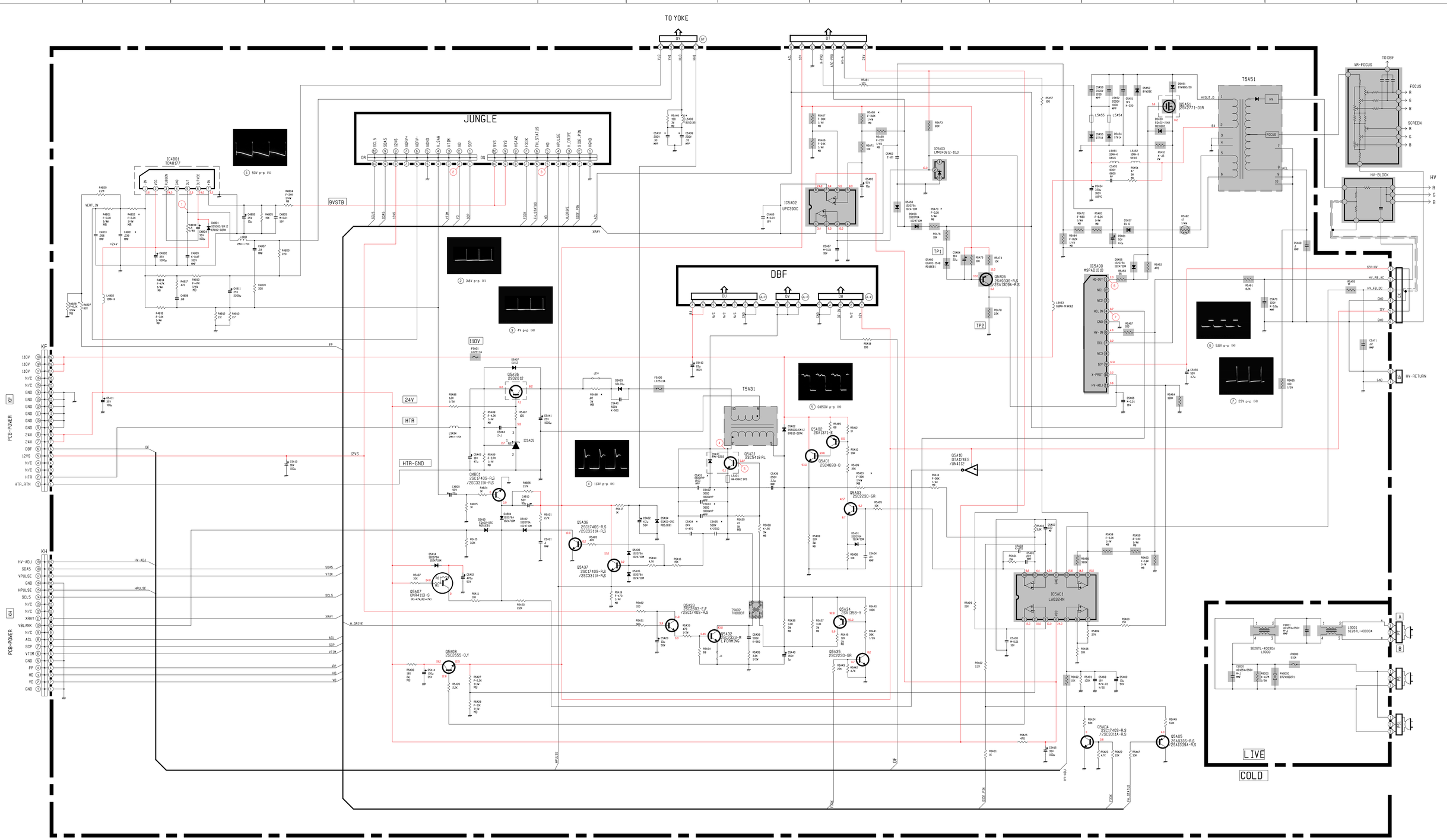
P5.6	SIGNAL-2 (MICRO)	
P5.7	SIGNAL-3 (VC/SW)	
P5.8	3DYC	
P5.9	CONV GEN / JUNGLE	
P5.10	CRT/CONTROL/A1/SVM/DBF	
P5.11	2HDW-1	
P5.12	2HDW-2	
P5.13	2HDW-3	



MODELS	C5A37×	C5A38×	R5A68×	R5A70×	R5A13×	R5A98×	J2×	R4B02×	R4B28×	C4B01×	C5A31×	C5A32×	C5A33×	C5A34×	C5A35×	L5A33×
WT-46809	250V .39 MPP	250V .39 MPP	F-3.6K	F-3.3K	F-33K	X	0	F-3.0K	F-7.5K	50V .033	X	1.8KV .0036MPP	1.8KV .0036MPP	2KV K-470	500V K-4700	333P059-10
55"	250V .27 MPP	250V .27 MPP	F-3.6K	F-3.3K	F-39K	3W .82-J	X	F-3.0K	F-6.2K	50V .039	X	1.8KV .0036MPP	1.8KV .0036MPP	2KV K-470	500V K-4700	333P059-10
65"	250V .33 MPP	250V .33 MPP	F-3.6K	F-3.3K	F-39K	3W .82-J	X	F-2.2K	F-6.2K	50V .039	1.8KV .0015 MPP	1.8KV .0033MPP	1.8KV .0036MPP	2KV K-220	500V K-2200	333P052-30

CONTENTS

PG.1.... BLOCK DIAGRAM
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PG.3.... POWER
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PG.6.... SIGNAL-2 (MICRO)
PG.7.... SIGNAL-3 (VC/SW)
PG.8.... 3DYC
PG.9.... CONV.GEN / JUNGLE
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PG.11.. 2HDW-1
PG.12.. 2HDW-2
PG.13.. 2HDW-3

WS-55809
WS-65809
WT-46809
WS-55819
WS-65819

LIVE COLD

PCB-SIGNAL-3 KC

ICBCD1 STK392-570

ICBCD2 STK392-570

T9A20

STR-G6632

IC9A50 STR-F6628

Q9A50 2SC2274-F /2SC2274K-F

Q9A20 FMP27NOS1

Q9A21 2SC5174QS-R,S /2SC3311A-R,S

Q9A22 2SC5174QS-R,S /2SC3311A-R,S

Q9A23 FMP27NOS1

Q9A51 2SC5174QS-R,S /2SC3311A-R,S

Q9A54 2SC5174QS-R,S /2SC3311A-R,S

Q9A53 2SC5174QS-R,S /2SC3311A-R,S

IC9E01 LA4565

PCB9A20 TLP421A(GR)

PCB9A50 TLP421A(GR)

PCB9A51 TLP421A(GR)

IC9A21 NJM431L

IC9A51 BL110N

CONV-GENE

24V
-24V
24V
12VS
12V
ACOFF
5V
5VS
12V
12VS
32V
110V
24V
-24V
220V
110V
12VS
AUDIO
24V
-24V
110V
12V
220V
110V
12VS
5V

RH_H
RH_L
GH_H
GH_L
BH_H
BH_L
RV_H
RV_L
GV_H
GV_L
BV_H
BV_L

READY
GREEN/BLUE DY
SPEAKERS

L_OUT+
L_OUT-
R_OUT-
R_OUT+

MUTE3

PCB-SVM KA

PCB-CRT (R) SM

PCB-MAIN KF

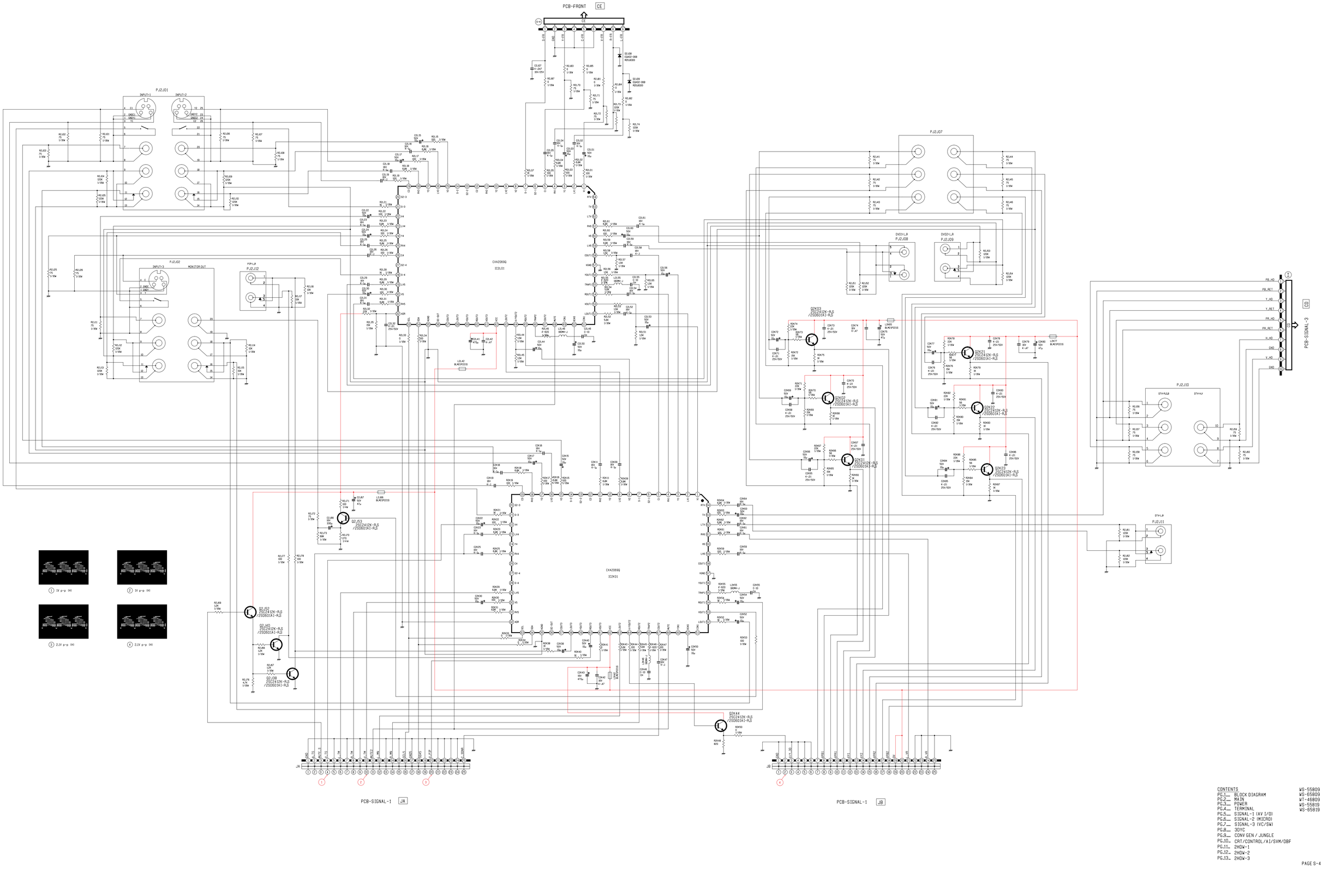
PCB-MAIN KH

PCB-SIGNAL-3 KD

PCB-SIGNAL-3 KE

CONTENTS
P6.1.... BLOCK DIAGRAM
P6.2.... MAIN
P6.3.... POWER
P6.4.... TERMINAL
P6.5.... SIGNAL-1 (AV I/O)
P6.6.... SIGNAL-2 (MICRO)
P6.7.... SIGNAL-3 (VC/SW)
P6.8.... 3DYC
P6.9.... CONV GEN / JUNGLE
P6.10.. CRT/CONTROL/A1/SVM/DBF
P6.11.. 2HDW-1
P6.12.. 2HDW-2
P6.13.. 2HDW-3

WS-55809
WS-65809
WT-46809
WS-55819
WS-65819



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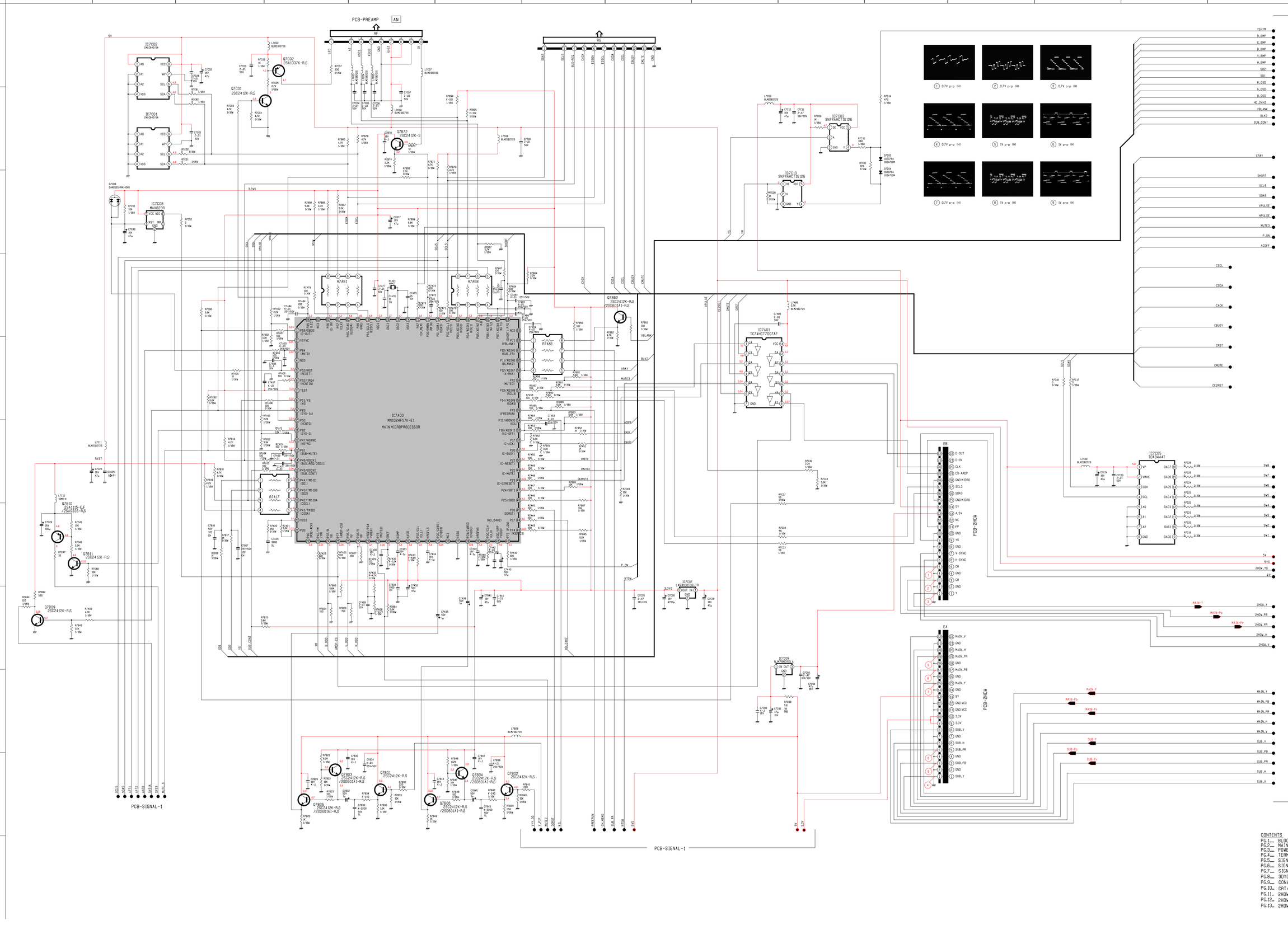

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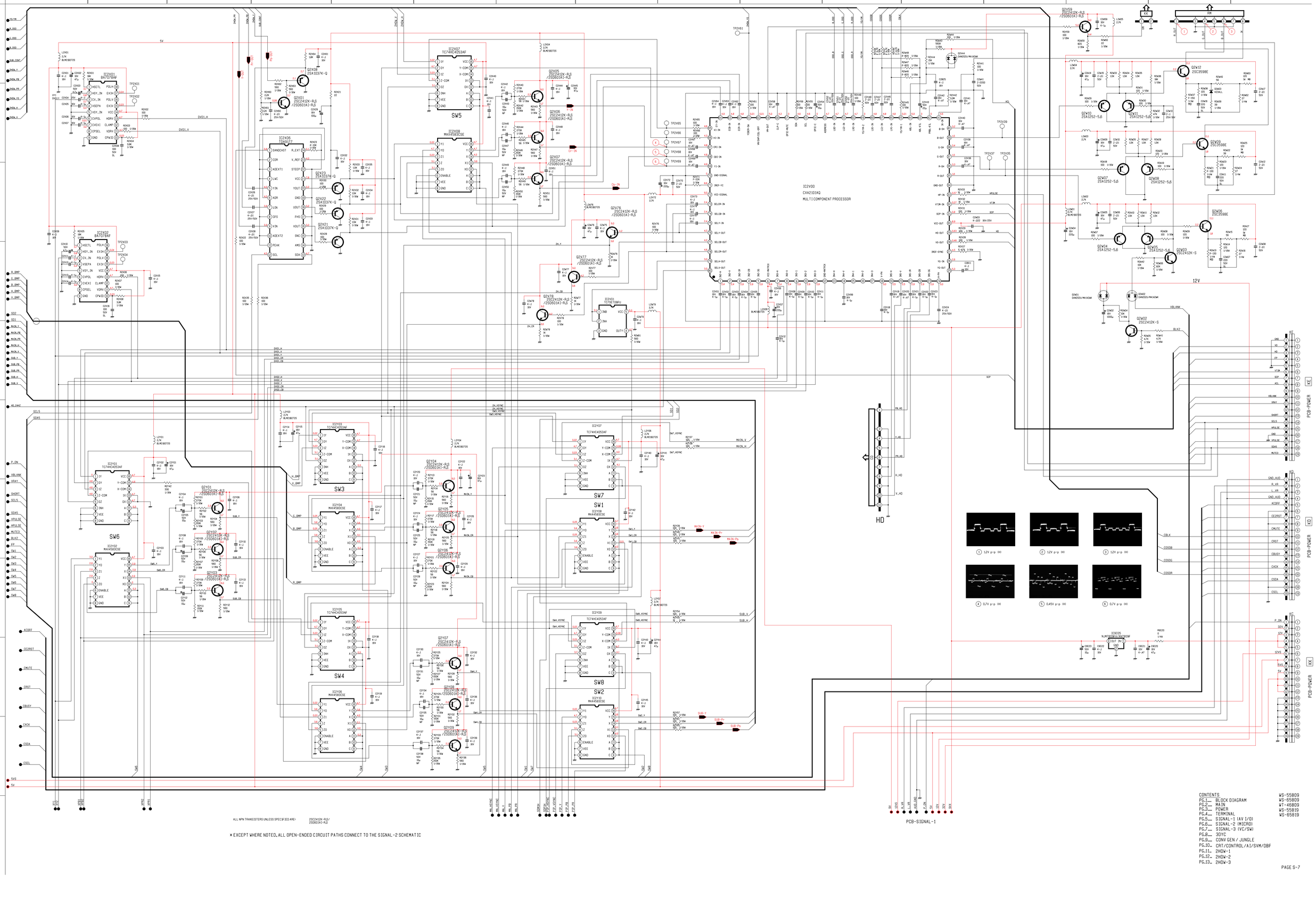

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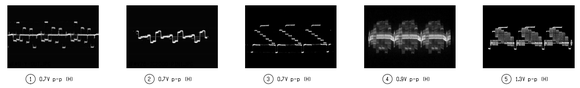
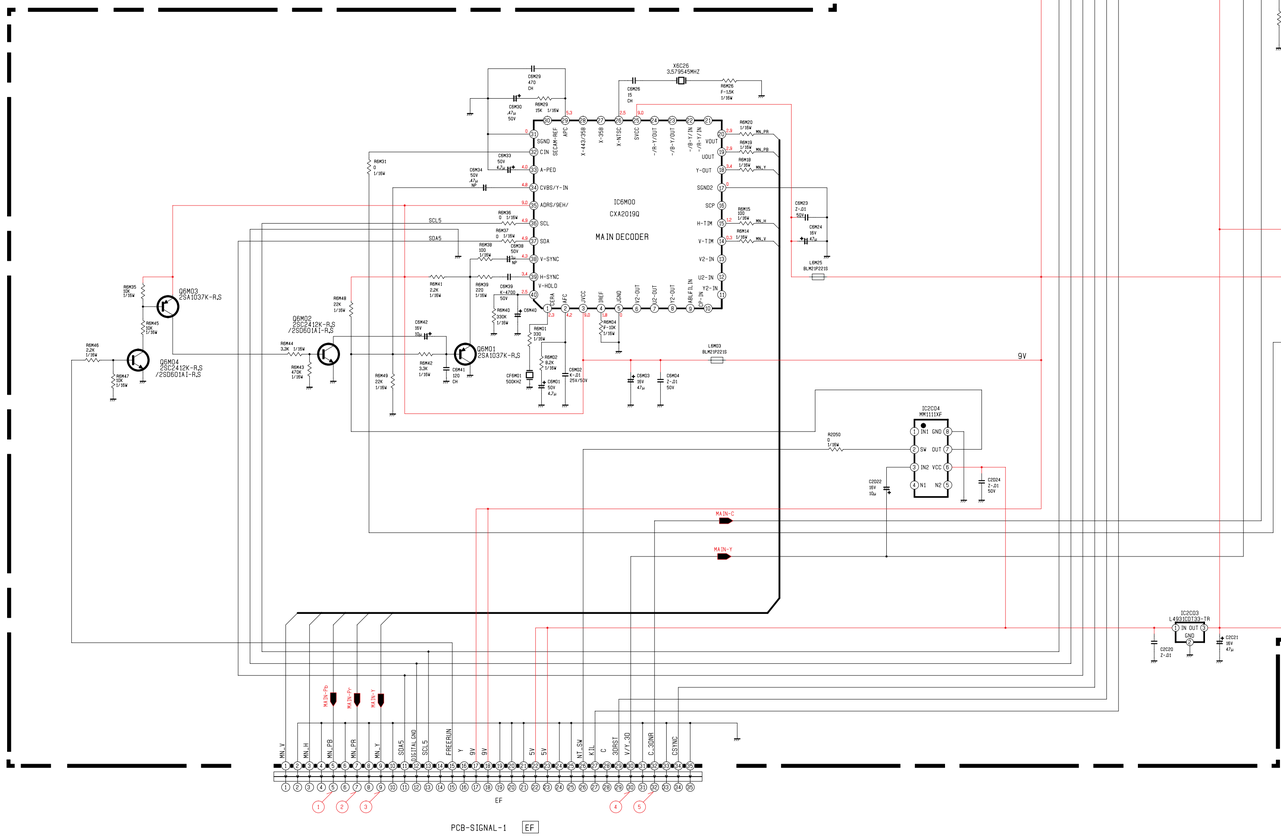
P6.12	2HDW-2	
P6.13	2HDW-3	

ALL NPN TRANSISTERS UNLESS SPECIFIED ARE: 2SC2412K-RLS/ 2SD601A1-RLS

× EXCEPT WHERE NOTED, ALL OPEN-ENDED CIRCUIT PATHS CONNECT TO THE SIGNAL-2 SCHEMATIC





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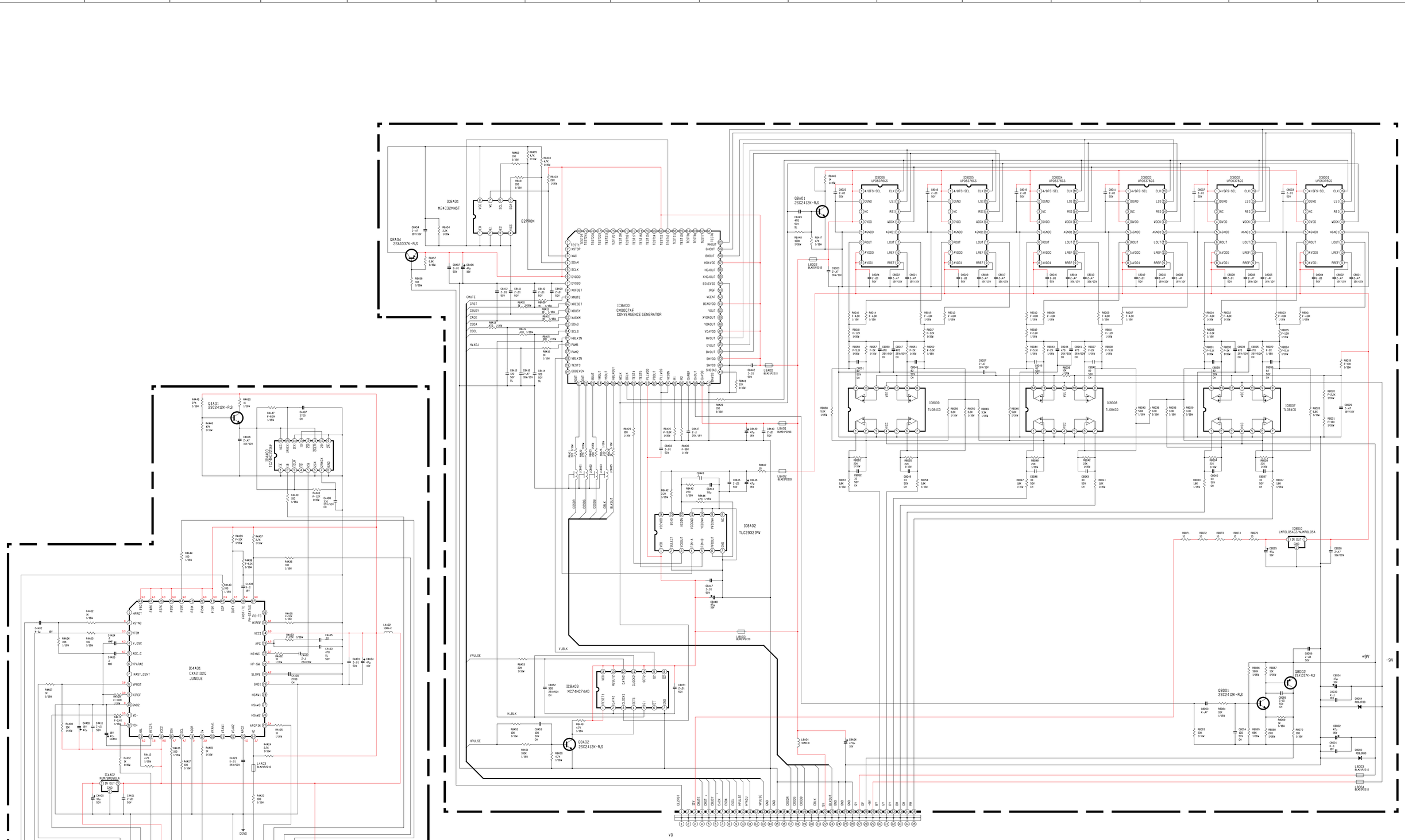

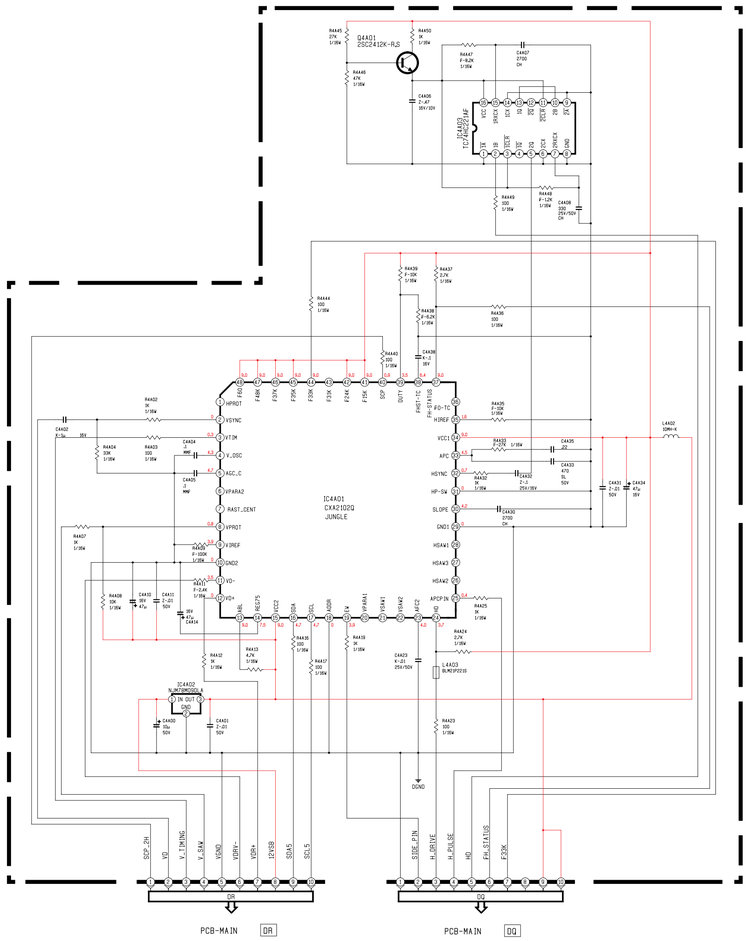

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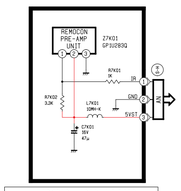

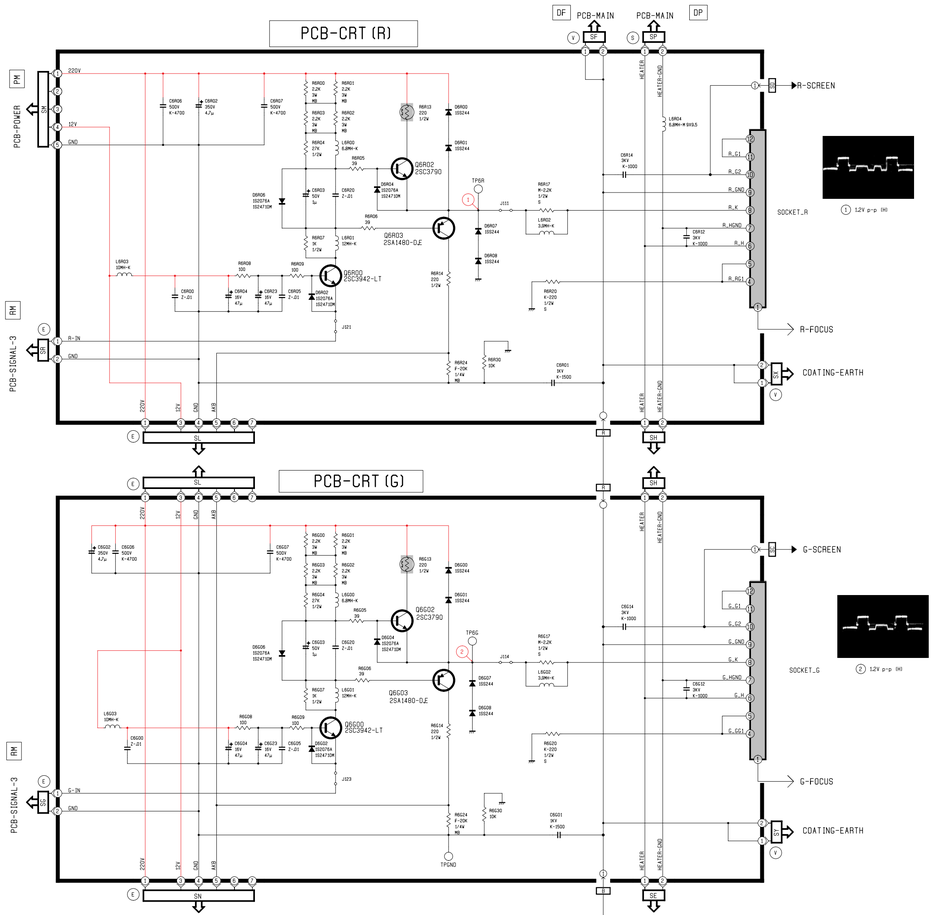

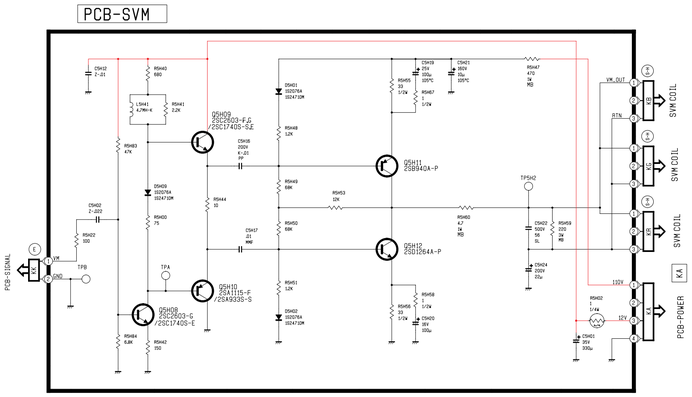

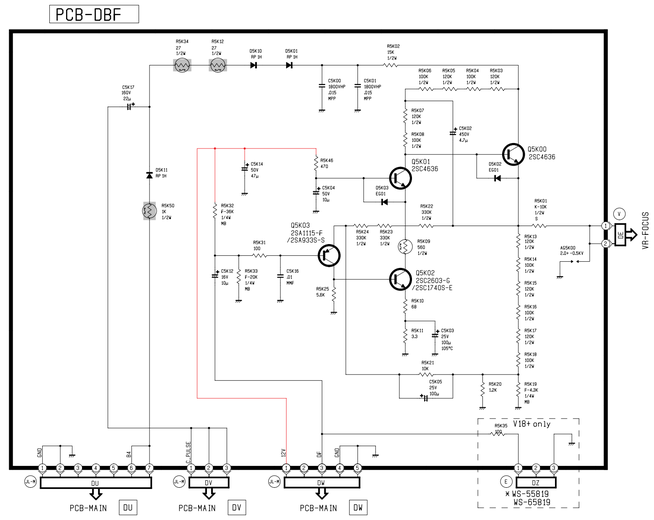

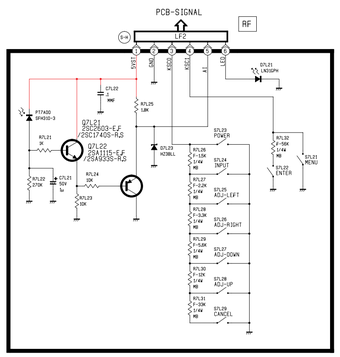

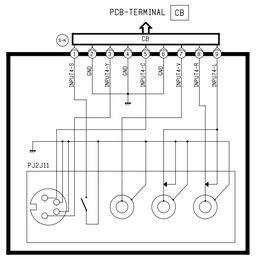

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PG.12	2HDW-2	
PG.13	2HDW-3	

PCB-SIGNAL-2

EA

SUB-Y
GND
SUB-CB
GND
SUB-CR
GND
SUB-H
GND
SUB-V
GND
3.3V
GND
3.3V
GND
5V
GND
MAIN-Y
GND
MAIN-CB
GND
MAIN-H
GND
MAIN-V

LC7010
LC7011
LC7012
LC7013
LC7014
LC7015
LC7016
LC7017
LC7018
LC7019
LC7020
LC7021
LC7022
LC7023
LC7024
LC7025
LC7026
LC7027
LC7028
LC7029
LC7030
LC7031
LC7032
LC7033
LC7034

ELK1103FA
ELK1103FA

SHD
SYD
MHD
MVD

MAIN-H
MAIN-V
SUB-H
SUB-V
3.3V
5V

* ALL OPEN-ENDED CIRCUIT PATHS CONNECT TO THE 2HDW-1 SCHEMATIC

L7000 14MHZ SMD
L7001 14MHZ SMD
L7002 14MHZ SMD
L7E00 14MHZ SMD
L7E01 14MHZ SMD
L7E02 14MHZ SMD

IC7000 TC74HC4066AFN
IC7E00 TC74HC4066AFN

IC7001 IC7002 IC7003 IC7E01 IC7E02 IC7E03 ADS931E

IC7010 IC7011 IC7E10 IC7E11 MC74AC157DR

M-Y
M-CB
M-CR
M-CLAMP
M-ADC
M-MPX
M-CLP
M-MPXCLK
M-ADCLK

S-Y
S-CB
S-CR
S-CLAMP
S-ADC
S-MPX
S-CLP
S-MPXCLK
S-ADCLK

MAIN-Y
MAIN-CB
SUB-Y
SUB-CB

ASV
3.3V
D3.3V

CONTENTS

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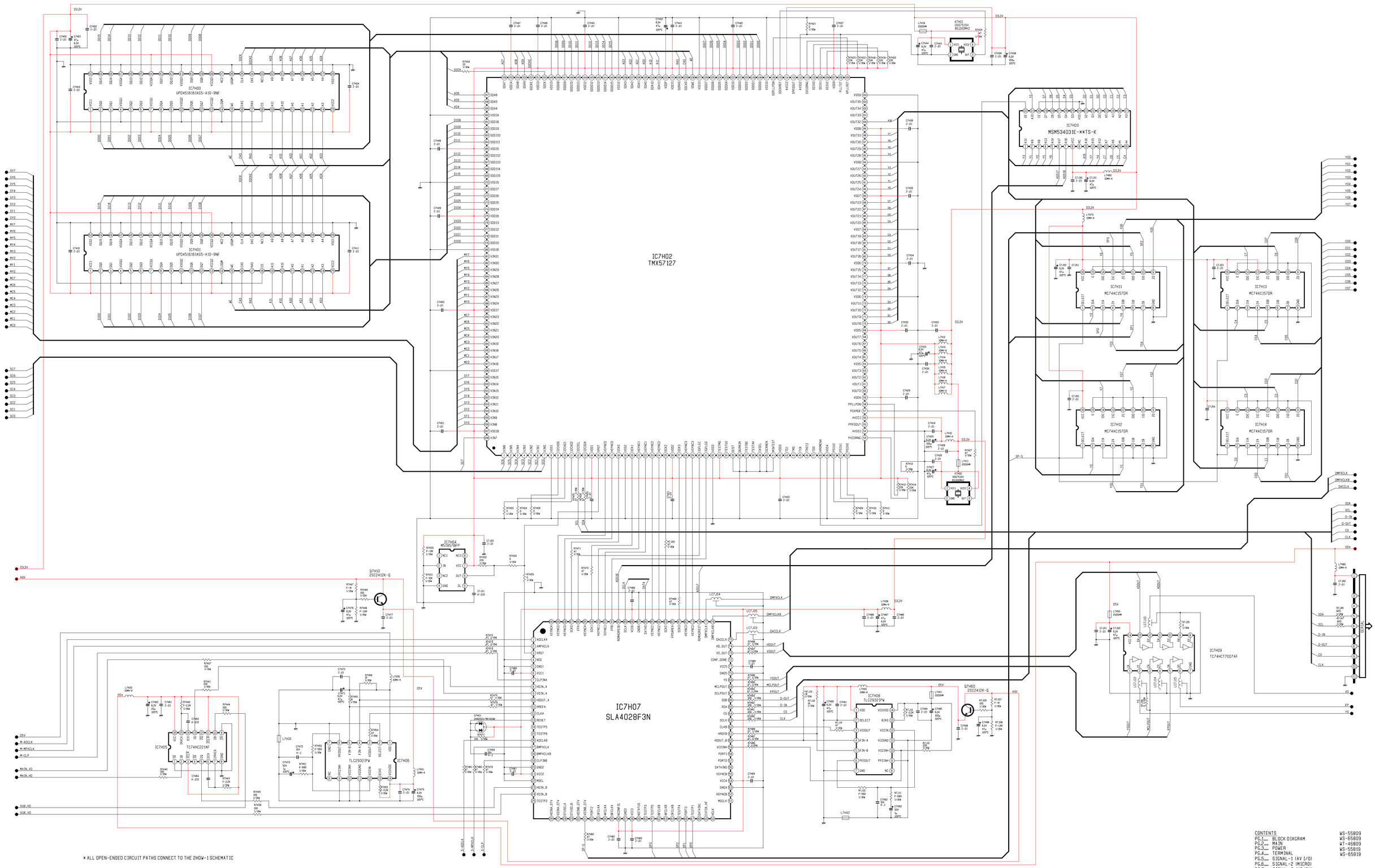
PG.11	2HDW-1	
PG.12	2HDW-2	
PG.13	2HDW-3	



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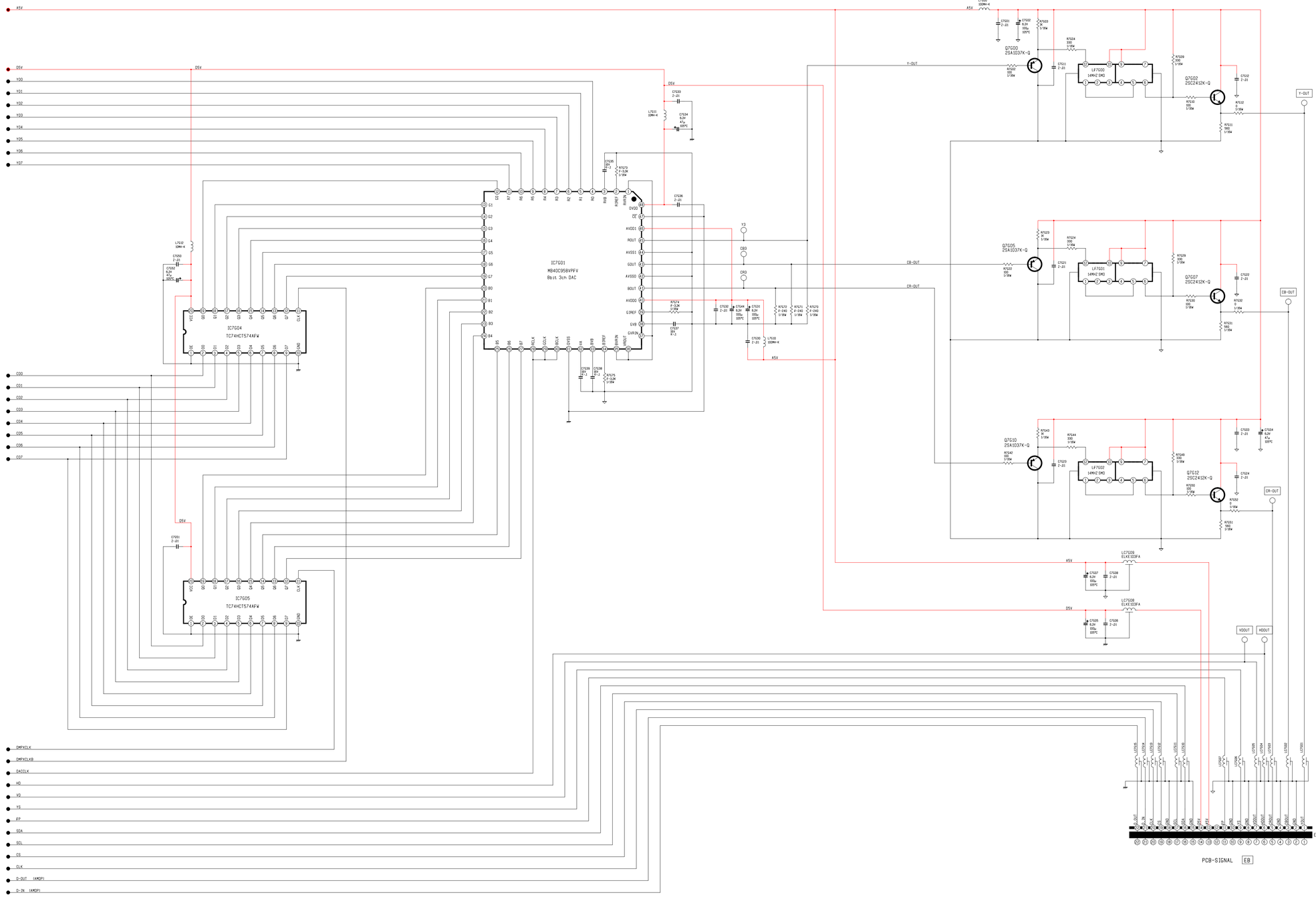

× ALL OPEN-ENDED CIRCUIT PATHS CONNECT TO THE 2HDW-2 SCHEMATIC

CONTENTS

PG.1	BLOCK DIAGRAM	WS-55809
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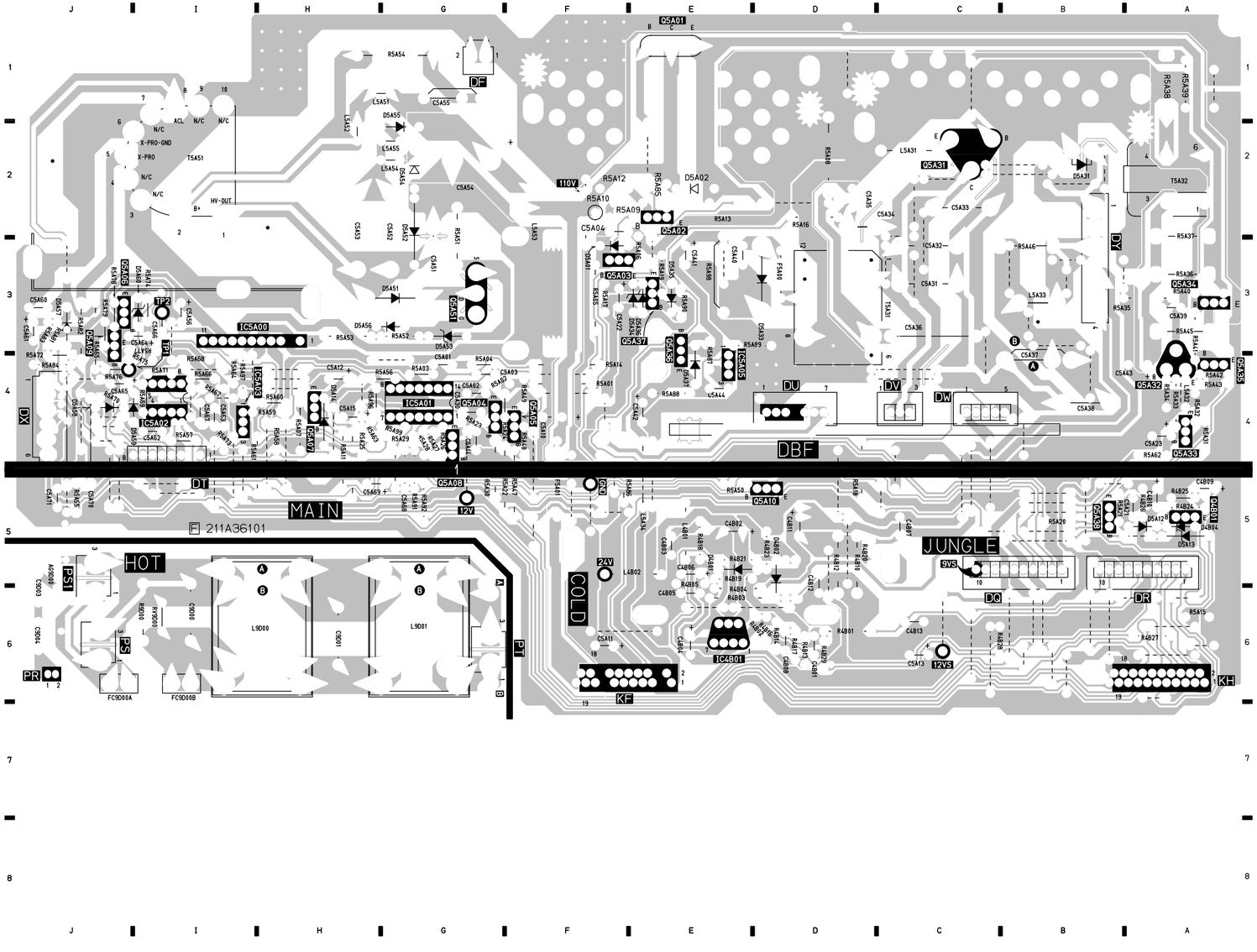
PG.12	2HDW-2	
PG.13	2HDW-3	



SYMBOL NO.	ADDRESS
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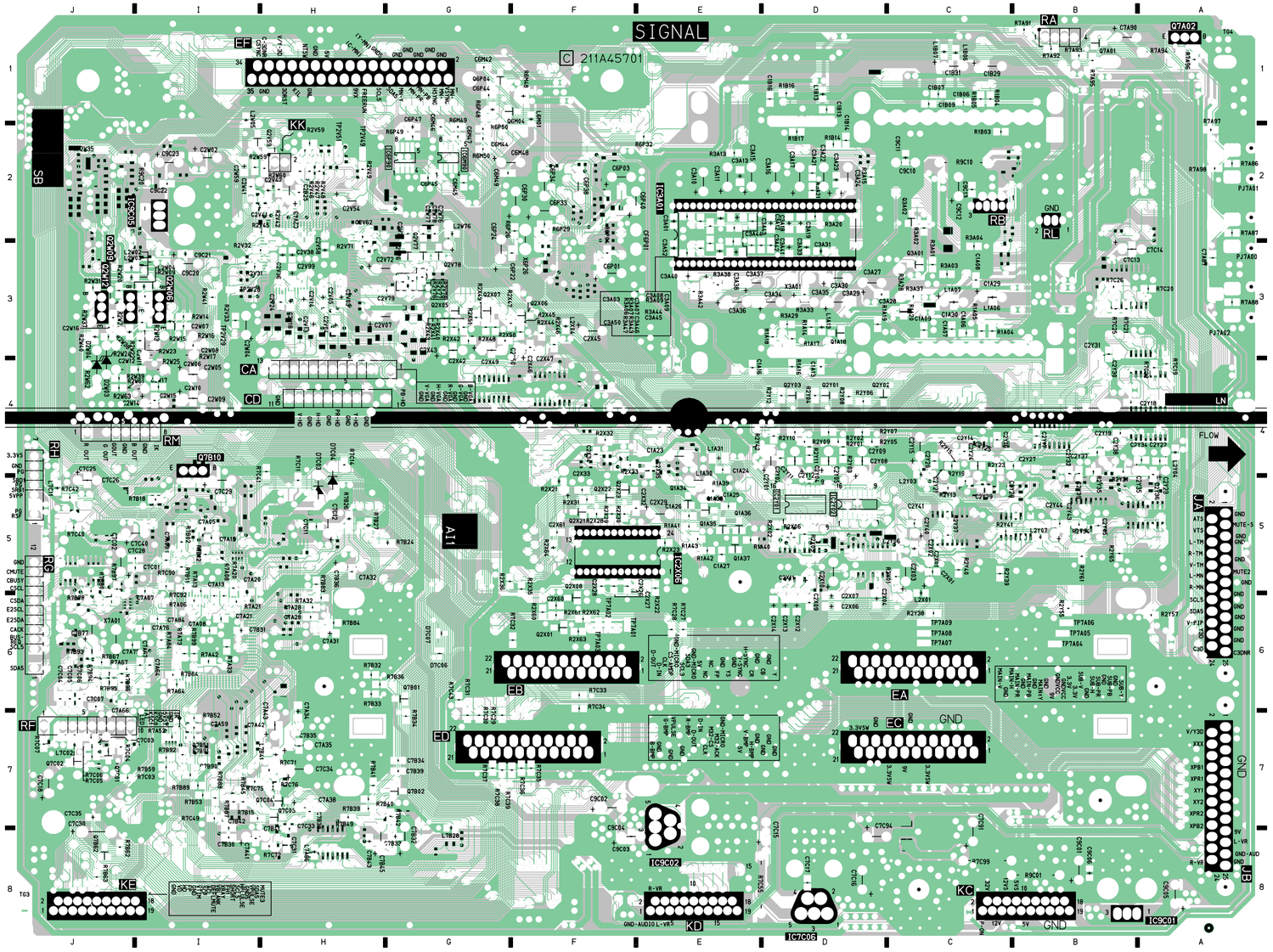
D4B01	E5
D4B04	A5
D5A01	F3
D5A02	E2
D5A12	A5
D5A13	A5
D5A14	H4
D5A31	B2
D5A33	D3
D5A34	E3
D5A35	E3
D5A36	E3
D5A37	E4
D5A51	G3
D5A52	G2
D5A53	G3
D5A54	G2
D5A55	G2
D5A56	G3
D5A57	J3
D5A58	J4
D5A59	J4
D5A60	I3
F5A00	D3
F5A01	F5
FC9D00A	J6
FC9D00B	I6
IC4B01	E6
IC5A00	I3
IC5A01	G4
IC5A02	I4
IC5A03	I4
IC5A05	E4
IC5A06	E4
L4B02	E5
L5A31	C2
L5A32	A4
L5A33	B3
L5A34	E5
L5A51	H1
L5A52	H1
L5A54	G2
L5A55	G2
L5A58	F2
L9000	H6
L9001	G6
	A5
Q4B01	
Q5A01	E1
Q5A02	E2
Q5A03	F3
Q5A04	G4
Q5A05	F4
Q5A06	J3
Q5A07	H4

SYMBOL NO.	ADDRESS
Q5A08	G4
Q5A09	J3
Q5A10	D5
Q5A31	C2
Q5A32	A4
Q5A33	A4
Q5A34	A3
Q5A35	A4
Q5A36	E3
Q5A37	E3
Q5A38	B5
Q5A51	G3
RV9000	I6
T5A31	C3
T5A32	A2
T5A51	I2
TP1	J4
TP2	I3



SYMBOL NO.	ADDRESS
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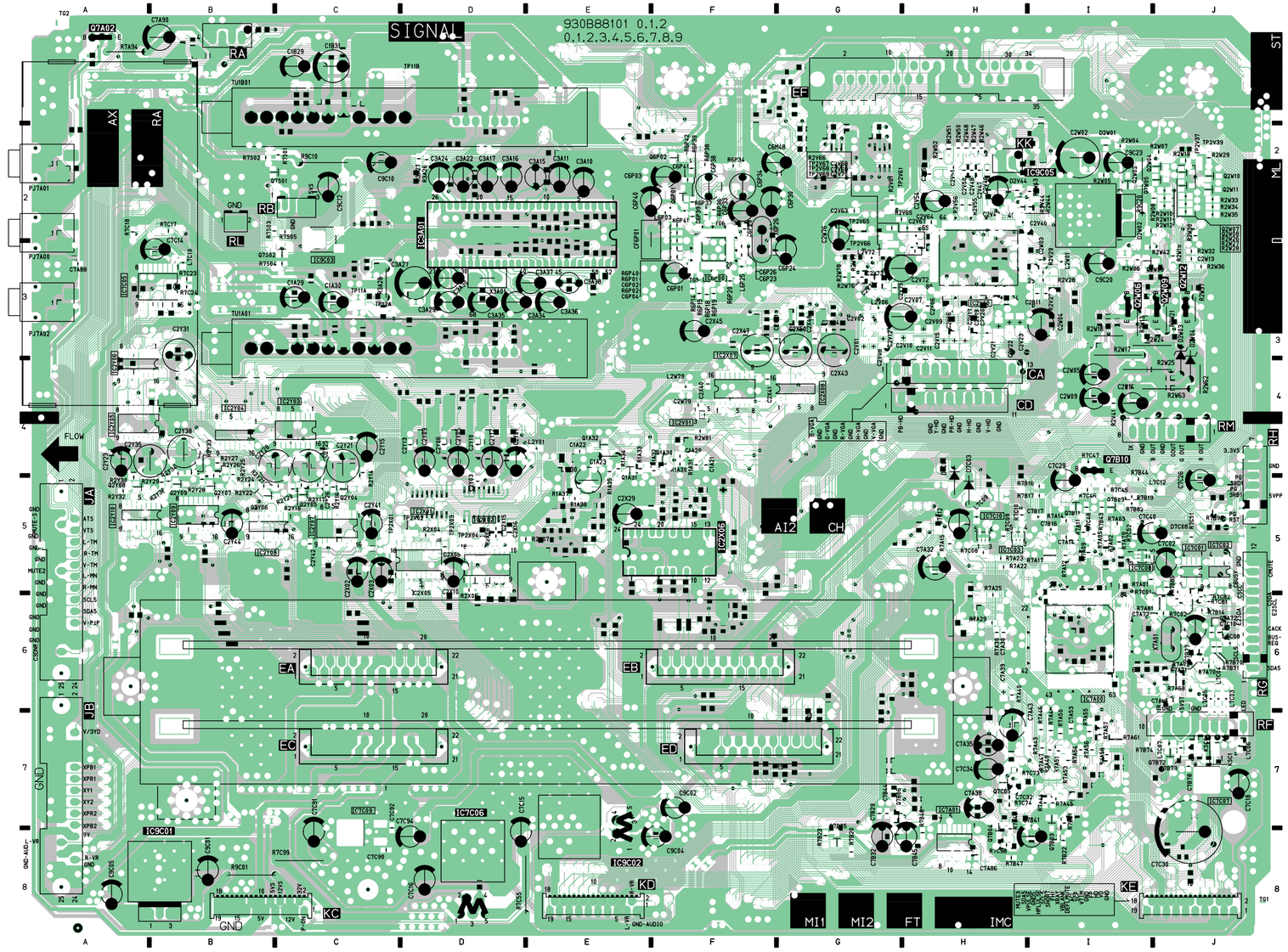
D2W04	J3
D7C03	H4
D7C04	H4
D7C06	G6
D7C07	G6
IC2X06	F5
IC2Y01	E5
IC2Y02	E5
IC3A01	E2
IC6M90	G2
IC6P90	G2
IC7C06	D8
IC9C01	B8
IC9C02	E7
IC9C05	J2
L1A06	C3
L1A07	C3
L1A13	D3
L1A31	E4
L1B06	C1
L1B13	D1
L2W02	I3
L2W03	I3
L2W04	I3
L2W05	I2
L2W76	G2
L2X01	C6
L2X04	F3
L2Y03	C5
L2Y04	A5
L2Y06	E5
L2Y06	C5
L6M01	F2
L7A86	H8
L7B28	G8
L7C11	J5
PJ7A00	A3
PJ7A01	A2
PJ7A02	A3
Q1A18	D3
Q1A33	E5
Q1A34	E5
Q1A35	F5
Q1A36	F5
Q1A37	F5
Q2V59	I2
Q2V76	G3
Q2V77	G3
Q2V78	G3
Q2W06	I3
Q2W09	J3
Q2W12	J3
Q2X01	F6
Q2X05	G3
Q2X06	F3

SYMBOL NO.	ADDRESS
Q2X07	G3
Q2X08	F6
Q2X21	F5
Q2X22	F5
Q2X23	F5
Q2Y01	D4
Q2Y02	D4
Q2Y03	D4
Q3A01	C3
Q3A02	C2
Q7A01	B1
Q7A02	A1
Q7B01	G6
Q7B02	G7
Q7B10	I4
Q7B62	J8
Q7C01	J7
Q7C02	J7
Q7C03	H7
Q7C04	H7
TP2V28	I3
TP2V29	I3
TP2V49	H2
TP2V51	H2
TP7A01	F6
TP7A02	F6
TP7A03	F6
TP7A04	B6
TP7A05	B6
TP7A06	B6
TP7A07	C6
TP7A08	C6
TP7A08	C6
X3A01	D3
X6P26	F3
X7A01	J6



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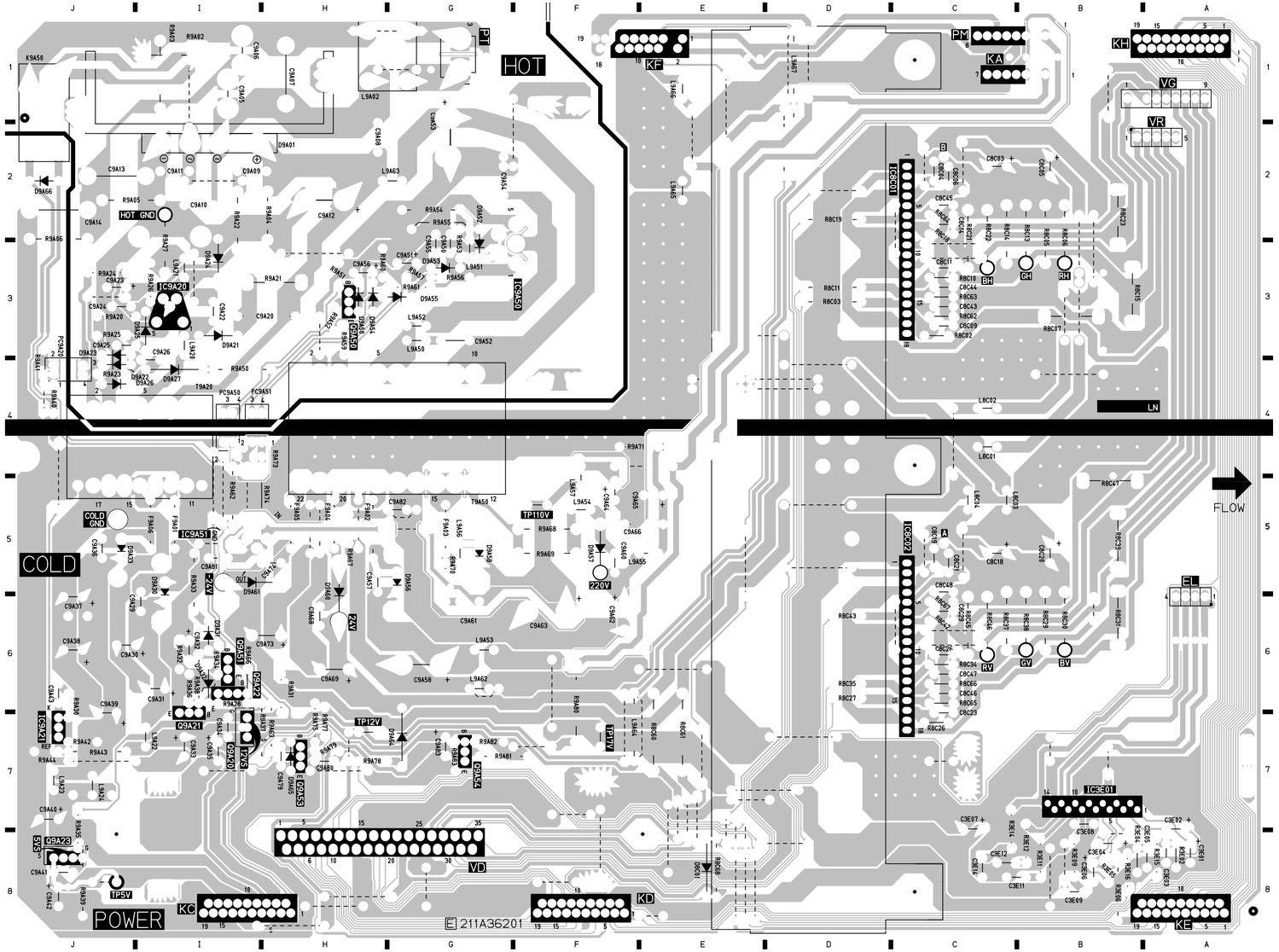
D2W02	I2
D2W03	J3
D2W04	J3
D7C03	H5
D7C04	H4
D7C08	J5
IC2V00	H3
IC2V01	F4
IC2X01	D5
IC2X02	D5
IC2X06	F5
IC2X07	F4
IC2X08	G4
IC2Y03	C4
IC2Y04	B4
IC2Y05	A4
IC2Y06	A4
IC2Y08	B5
IC2Y09	B5
IC2Y10	A5
IC3A01	D2
IC6P00	F3
IC7A00	I6
IC7A01	H8
IC7C01	J5
IC7C02	J5
IC7C03	H5
IC7C05	A3
IC7C06	D8
IC7C07	J7
IC7C08	I5
IC7C09	C7
IC7C10	H5
IC9C02	E7
IC9C03	C3
IC9C05	H2
L2V06	G3
L2V72	G3
L2W01	I3
L2W79	F4
L2Y01	E4
L6P25	F3
L7C04	J6
L7C05	J6
L7C06	J6
L7C06	J7
L7C07	J7
L7C08	H5
L7C09	J6
L7C10	B3
L7C12	J4
PJ7A00	A2
PJ7A01	A2
Q1A30	F4

SYMBOL NO.	ADDRESS
Q1A31	E4
Q1A32	E4
Q2708	A5
Q2W02	I2
Q2W03	I3
Q2W04	I2
Q2W05	I2
Q2W06	I3
Q2W07	J2
Q2W08	J2
Q2W09	J3
Q2W10	J2
Q2W11	J2
Q2W12	J3
Q2Y04	C5
Q2Y05	C5
Q2Y09	B5
Q6P01	F2
Q6P02	F2
Q7A02	A1
Q7B03	I7
Q7B04	H7
Q7B05	G8
Q7B06	G7
Q7B09	I5
Q7B10	I4
Q7B11	I5
Q7B41	I7
Q7B72	J7
Q7C05	H7
Q7S01	C2
Q7S02	C3
TP11A	C3
TP11B	D1
TP12A	C3
TP2V37	J2
TP2V39	J2
TP2V61	G2
TP2V66	G3
TP2V67	G2
TP2V68	G2
TP2V69	G2
TP2X01	C5
TP2X02	D5
TP2X03	D5
TU1A01	B3
TU1B01	B1
X3A01	D3
X6P26	F2
X7A01	J6



SYMBOL NO.	ADDRESS
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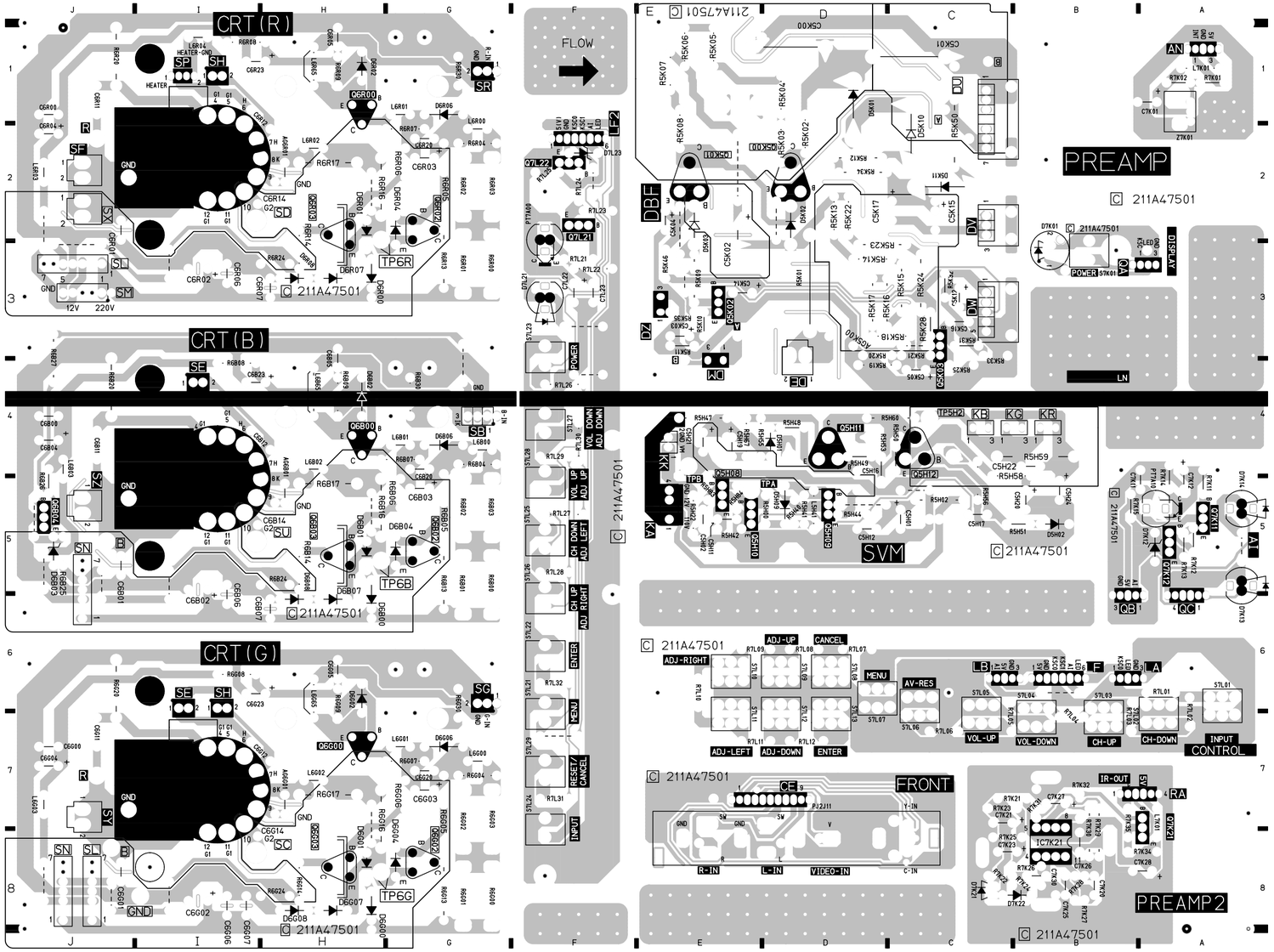
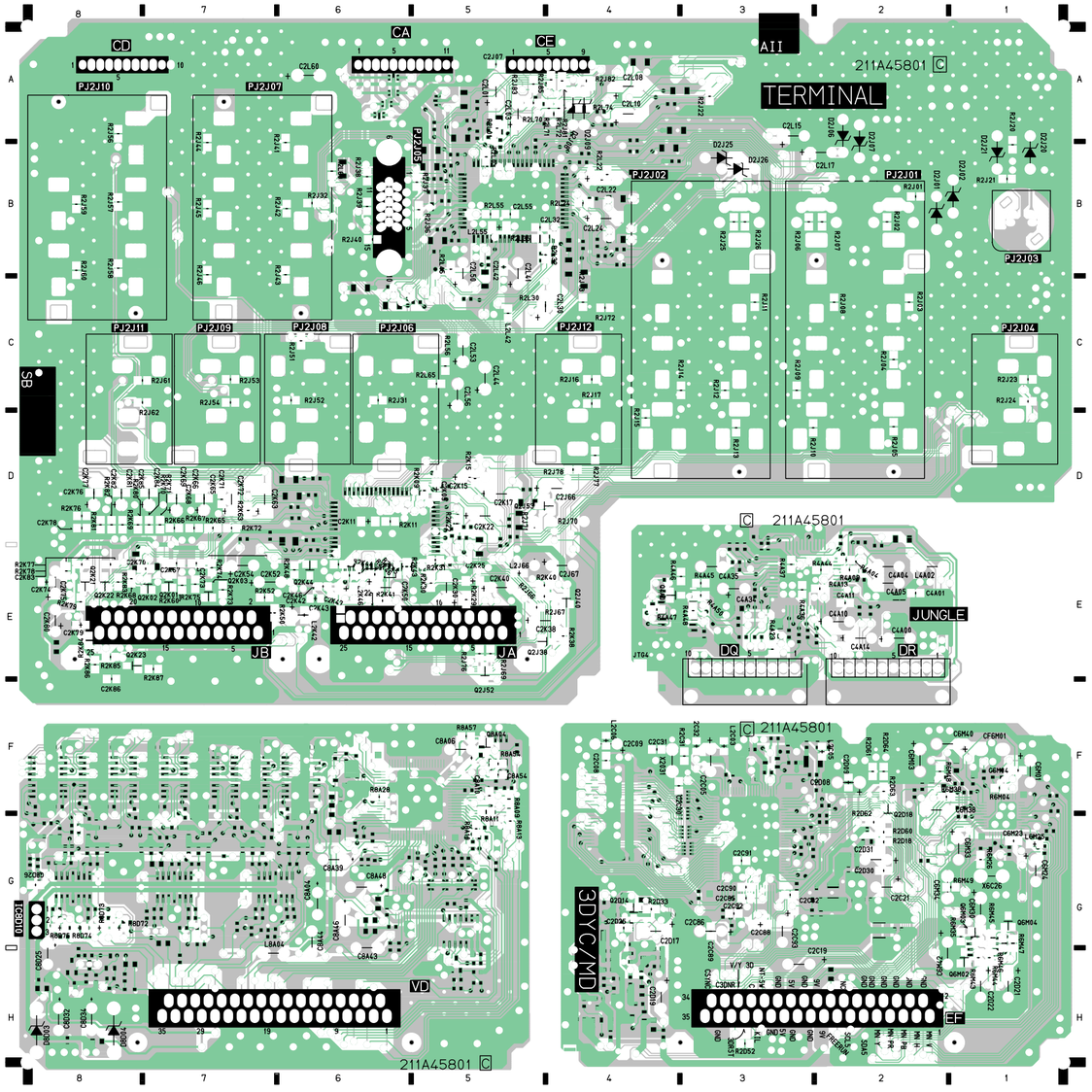
D9A01	H2
D9A21	I3
D9A22	J4
D9A23	J3
D9A25	I3
D9A26	J4
D9A27	I4
D9A30	I5
D9A31	I6
D9A32	I6
D9A33	J5
D9A50	H3
D9A52	G3
D9A53	G3
D9A54	H3
D9A55	G3
D9A56	G5
D9A57	F5
D9A58	G5
D9A60	H5
D9A61	I5
D9A64	G7
D9A66	J2
F9A01	I5
F9A02	H5
F9A04	H5
F9A05	H5
F9A06	I5
IC3E01	A7
IC8C01	C2
IC8C02	C5
IC9A20	I3
IC9A21	J7
IC9A50	F3
IC9A51	I5
K9A50	J1
L8C01	C4
L8C02	C4
L8C03	C5
L8C04	C5
L9A02	H1
L9A20	I3
L9A23	J7
L9A24	J7
L9A53	G6
L9A55	F5
L9A57	G6
L9A62	F5
L9A63	G2
L9A64	F7
L9A65	E2
L9A66	E1
L9A67	D1
PC9A20	J3

SYMBOL NO.	ADDRESS
PC9A50	I4
PC9A51	I4
Q9A20	I7
Q9A21	I6
Q9A21	I7
Q9A22	I6
Q9A23	J8
Q9A50	H3
Q9A51	I6
Q9A53	H7
Q9A54	G7
T9A20	I4
T9A50	G5
TP110V	G5
TP12V	H7
TP17V	F7
TP5V	J8


CRT(R)
CRT(B)
CRT(G)
FLOW
DBF
SVM
PREAMP
PREAMP2
FRONT
CONTROL
AI
DISPLAY
LN
211A47501
TP6R
TP6B
TP6G
SP
SH
SF
SX
SL
SM
SE
SB
SN
SD
SU
SC
SR
HEATER
GND
12V
220V
ADJ-UP
CANCEL
ADJ-RIGHT
MENU
AV-RES
ADJ-LEFT
ADJ-DOWN
ENTER
VOL-UP
VOL-DOWN
CH-UP
CH-DOWN
INPUT
RESET/ CANCEL
VOL DOWN
ADJ DOWN
VOL UP
ADJ UP
CH DOWN
ADJ LEFT
CH UP
ADJ RIGHT
R-IN
L-IN
VIDEO-IN
C-IN
Y-IN
IR-OUT


TERMINAL
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CB
CD
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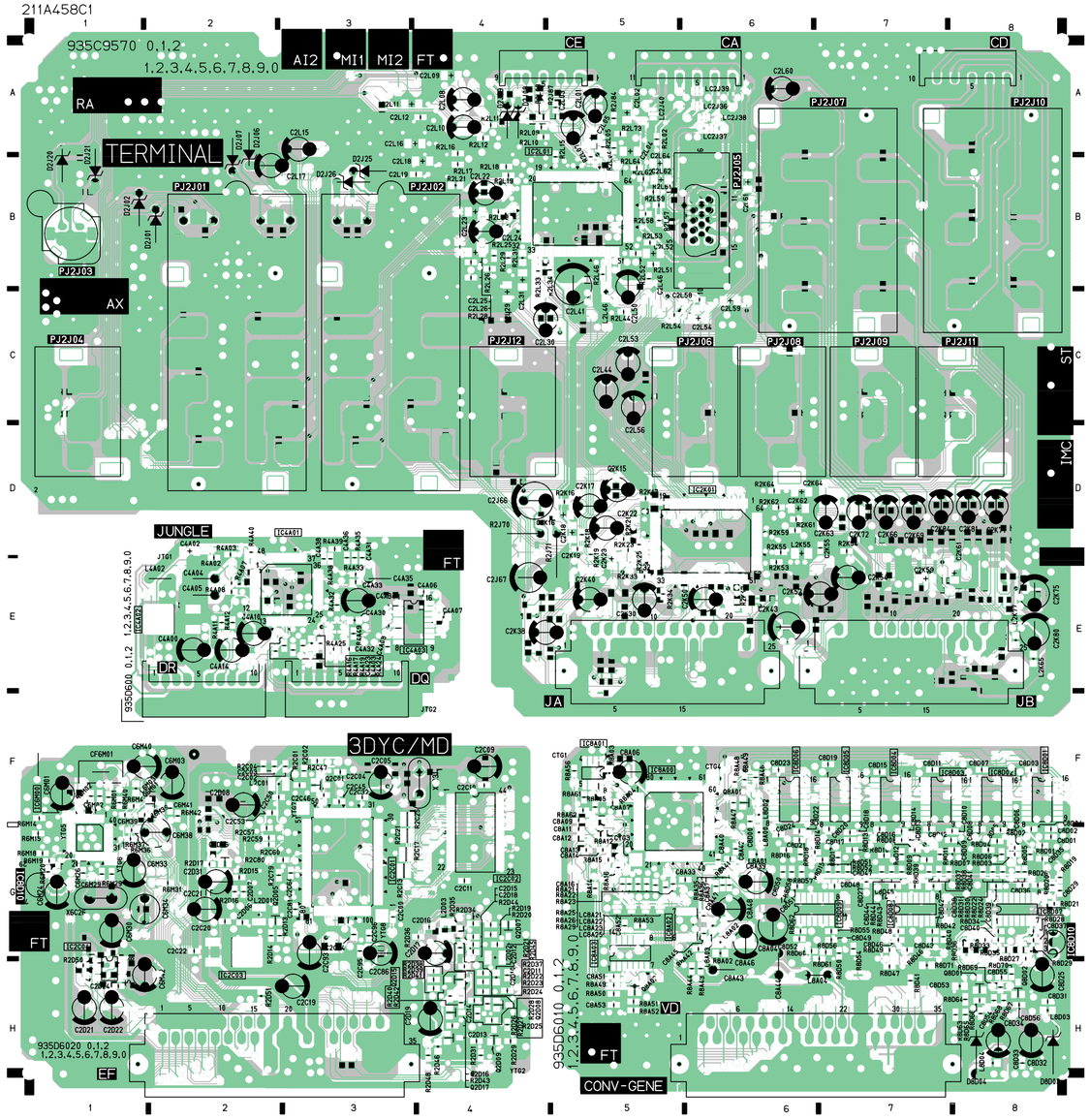
AII
PJ2J10
PJ2J07
PJ2J02
PJ2J01
PJ2J03
PJ2J11
PJ2J09
PJ2J08
PJ2J06
PJ2J12
PJ2J04
SB
JB
JA
211A45801 C
JUNGLE
DQ
DR
211A45801 C
3DYC/MD
EF
211A45801 C
VD
DBOARD


211A458C1
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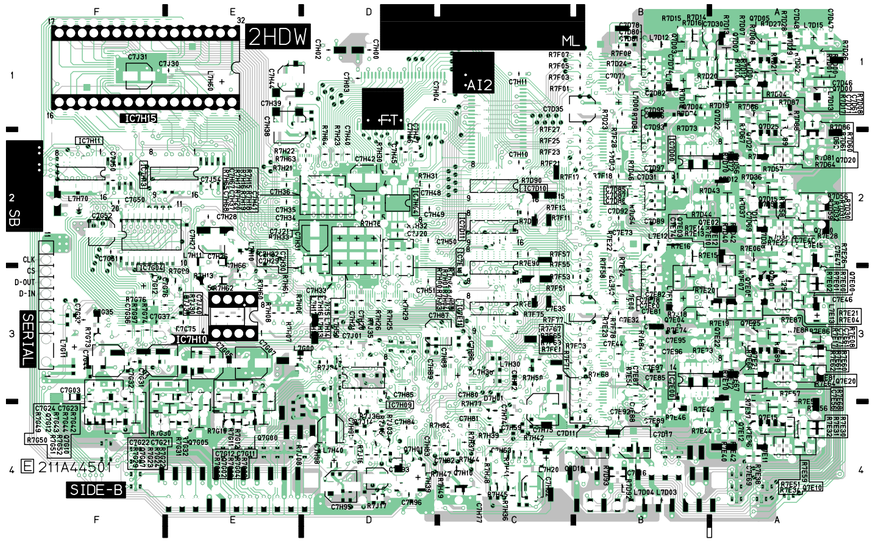
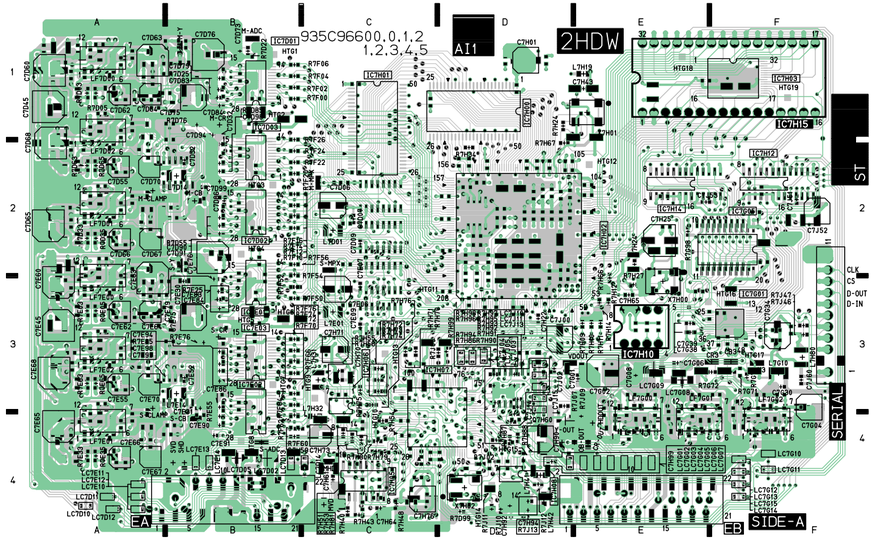
AI2
MI1
MI2
FT
RA
TERMINAL
AX
CE
CA
CD
PJ2J01
PJ2J02
PJ2J03
PJ2J04
PJ2J05
PJ2J06
PJ2J07
PJ2J08
PJ2J09
PJ2J10
PJ2J11
PJ2J12
ST
IMC
JUNGLE
FT
DR
DQ
JA
JB
935D600 0.1.2 1.2.3.4.5.6.7.8.9.0
3DYC/MD
935D6020 0.1.2
1.2.3.4.5.6.7.8.9.0
EF
935D6010 0.1.2
1.2.3.4.5.6.7.8.9.0
VD
CONV-GENE


2HDW
ML
AI2
FT
SB
SERIAL
IC7H15
IC7H10
E 211A44501
SIDE-B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1.2.3.4.5
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2HDW
ST
SERIAL
IC7H15
IC7H10
EA
EB
SIDE-A